



STIC Search Report

EIC 1700

STIC Database (including Utilities) (10/13/2005)

TO: Dawn Garrett
Location: REM 10C79
Art Unit : 1774
April 6, 2005

Case Serial Number: 10/729402

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 3/23/2005
 Art Unit: 1774 Phone Number 503-1523 Serial Number: 10/729,402
 Mail Box and Bldg/Room Location: Remsen 10C79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

*****SCIENTIFIC PREFERENCE BR*****
 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.
 Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organic Electroluminescent Devices Pat. & T.M. Office

Inventors (please provide full names): JOSEPH DEATON, ZBYSLAW OWCZARCZYK

Earliest Priority Filing Date: 12/5/2003

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search formulas

(1a), (1b), (1c), (1d), (1e), and (1f)

Attached

Thank you

STAFF USE ONLY

Searcher: W.La
 Searcher Phone #: _____
 Searcher Location: _____
 Date Searcher Picked Up: 4/6/05
 Date Completed: 4/6/05
 Searcher Prep & Review Time: 60
 Clerical Prep Time: 30
 Online Time: 120

Type of Search

NA Sequence (#) _____
 AA Sequence (#) _____
 Structure (#) 1
 Bibliographic _____
 Litigation _____
 Fulltext _____
 Patent Family _____
 Other _____

Vendors and cost where applicable

STN \$ 484.20
 Dialog _____
 Questel/Orbit _____
 Dr.Link _____
 Lexis/Nexis _____
 Sequence Systems _____
 WWW/Internet _____
 Other (specify) _____

=> fil reg
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FILE 'REGISTRY' ENTERED AT 13:35:03 ON 06 APR 2005
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L4 SCR 1965
L5 8 SEA SSS SAM L2 AND L4
D SCAN
L6 329 SEA SSS FUL L2 AND L4
SAV L6 GAR402/A
L7 STR L2
L8 STR L2
DIS
L9 15 SEA SUB=L6 SSS SAM L7
L10 239 SEA SUB=L6 SSS FUL L7
L11 3 SEA SUB=L6 SSS SAM L8
D SCAN
L12 51 SEA SUB=L6 SSS FUL L8

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L14 11 SEA ABB=ON PLU=ON L12
L15 70 SEA ABB=ON PLU=ON L13 OR L14
L16 31 SEA ABB=ON PLU=ON L15 AND (?LUMINES? OR LIGHT? OR
?EMIT? OR LED/IT OR OLED/IB,AB OR FLUORES? OR LUMIN?
OR PHOSPHORES?)
D FHITSTR
D FHITSTR 2-5

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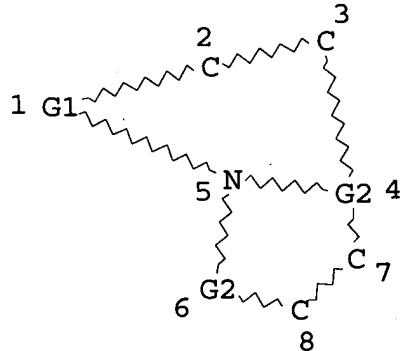
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FILE HCAPLUS

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L2 STR



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VAR G2=C/N

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 8

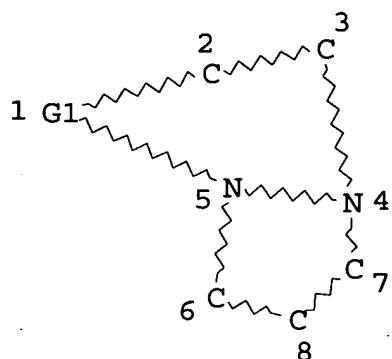
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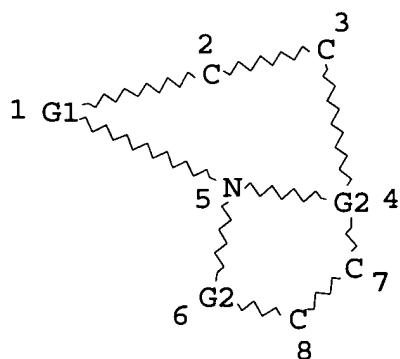
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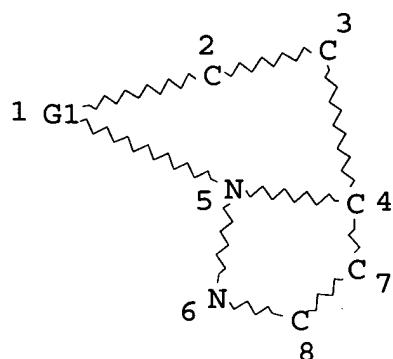
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FILE 'HCAPLUS' ENTERED AT 15:39:13 ON 06 APR 2005

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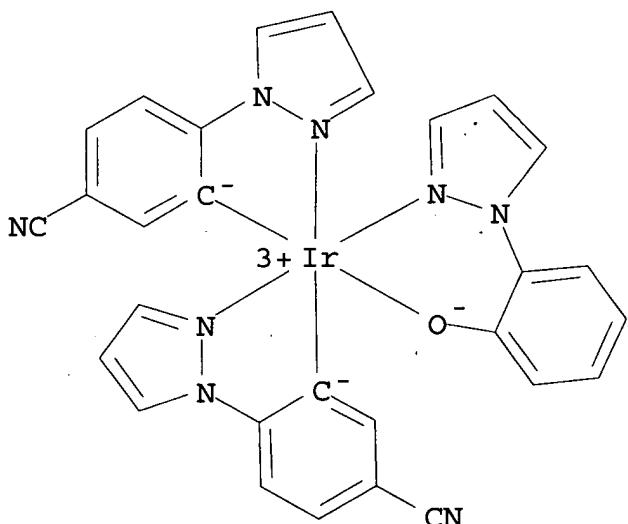
L16 ANSWER 1 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:123112 HCPLUS
 DOCUMENT NUMBER: 142:228240
 TITLE: Iridium compound and organic
 electroluminescent device using the
 same
 INVENTOR(S): Park, Soo-Jin; Lee, Kwan-Hee; Jung,
 Dong-Hyun; Shin, Dae-Yup; Kwon, Tae-Hyok; Hong, Jong-In
 PATENT ASSIGNEE(S): S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 66 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE				
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	US 2005031903	A1	20050210	US 2004-912287
2004				
0806	JP 2005053912	A2	20050303	JP 2004-227707
2004				
0804	PRIORITY APPLN. INFO.:			KR 2003-54778 A
2003				
0807				KR 2004-10414 A
2004				
0217				
AB	Organometallic compds. are described which comprise a metal, preferably iridium, with ligands including ≥1 ligand consisting of a(n) (un)substituted Ph ring attached to a(n)			

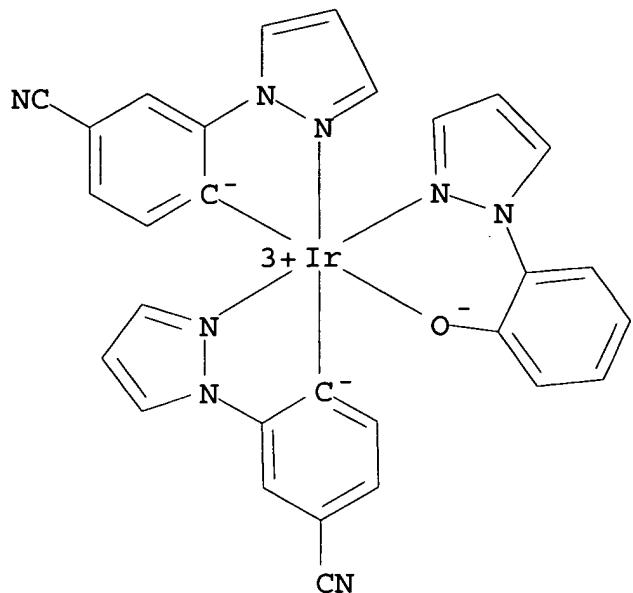
(un)substituted five-membered heterocycle having either two nitrogen atoms or a nitrogen and an oxygen atom as the heteroatoms, with the metal being bonded to the heterocycle at a nitrogen and to the Ph ring at a carbon. Organic **electroluminescent** devices employing the compds., especially devices with **emitting** layers incorporating them, are also described.

IT 843611-43-8 843611-44-9 843611-45-0
 843611-46-1 843611-47-2 843611-48-3
 843611-49-4 843611-51-8 843611-52-9
 843611-54-1 843611-55-2 843611-56-3
 843611-57-4 843611-58-5 843611-59-6
 (iridium complexes and other metal complexes with heterocycle-containing ligands and organic **electroluminescent** devices using them)

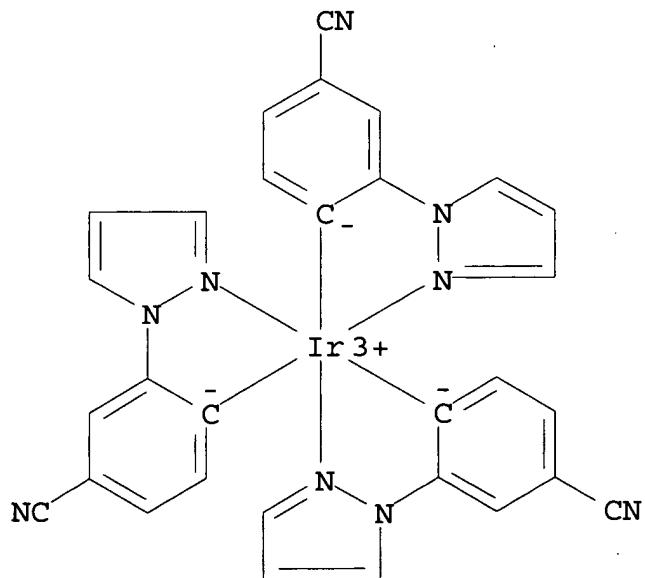
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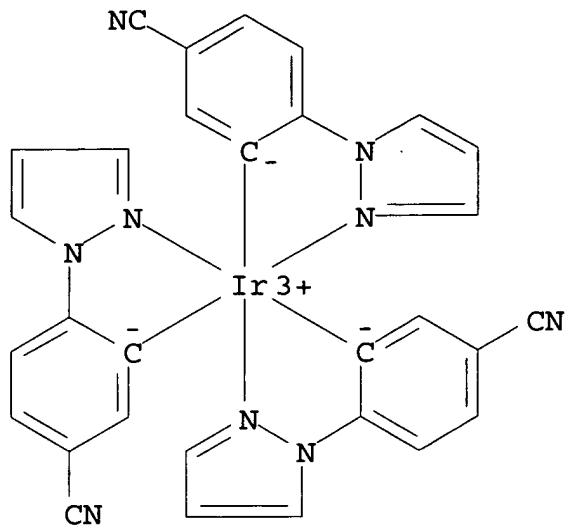
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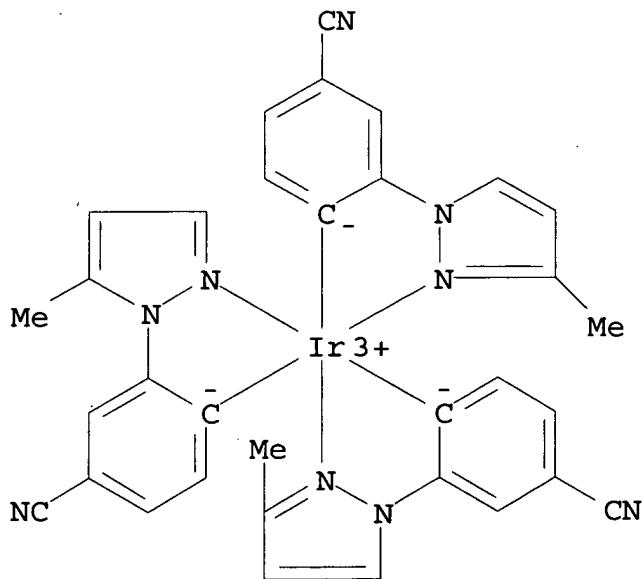
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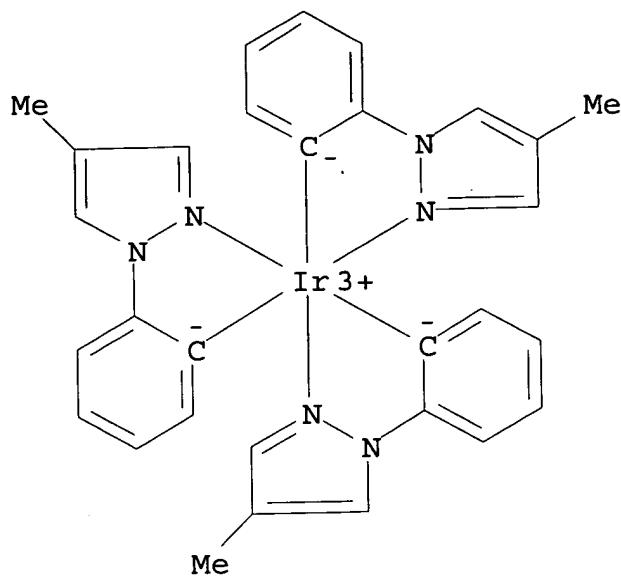
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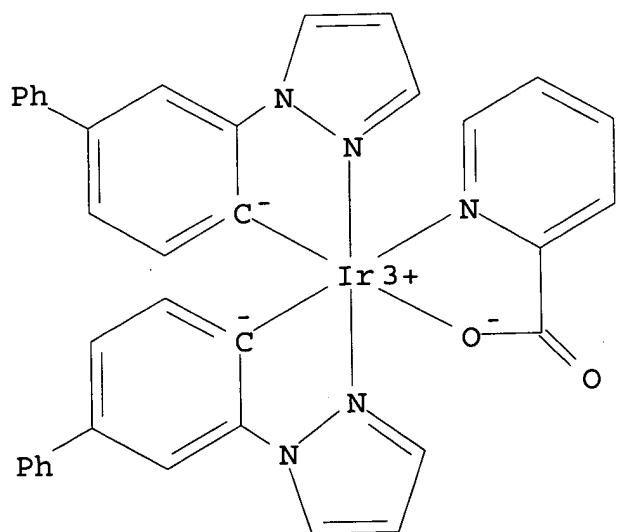
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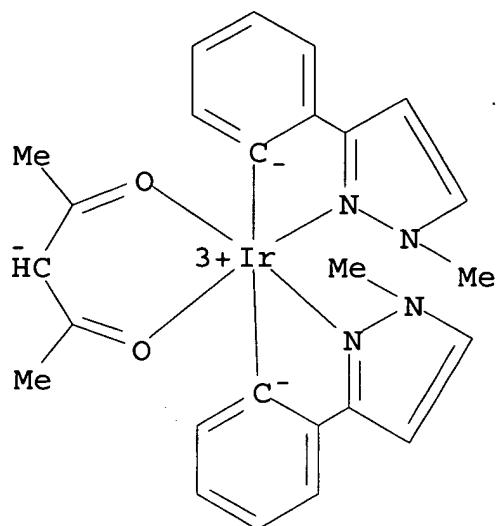
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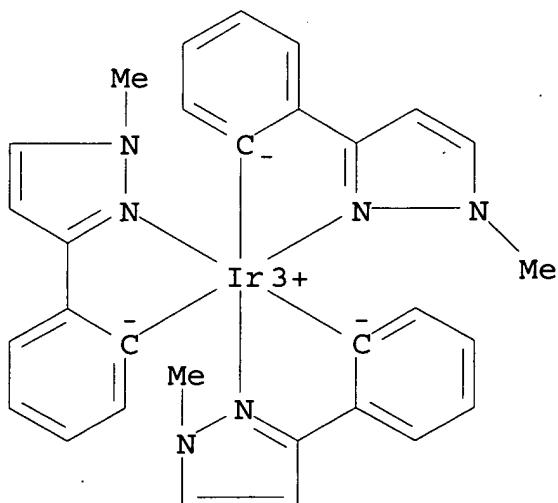
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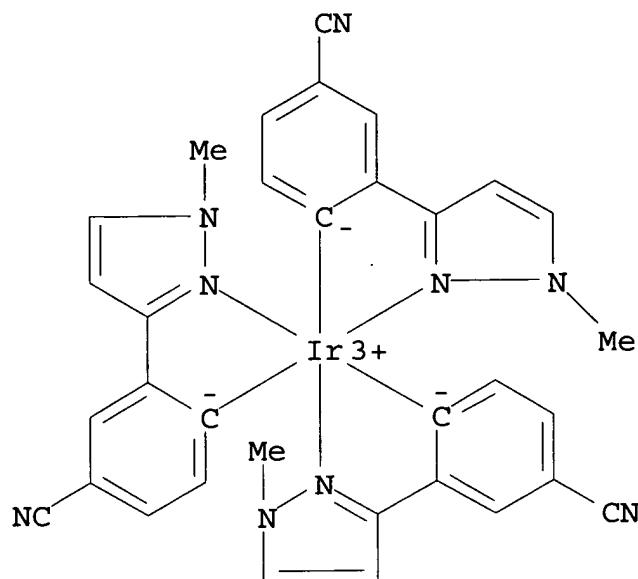
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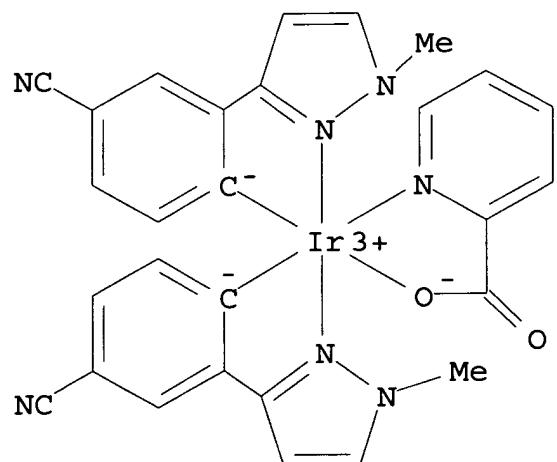
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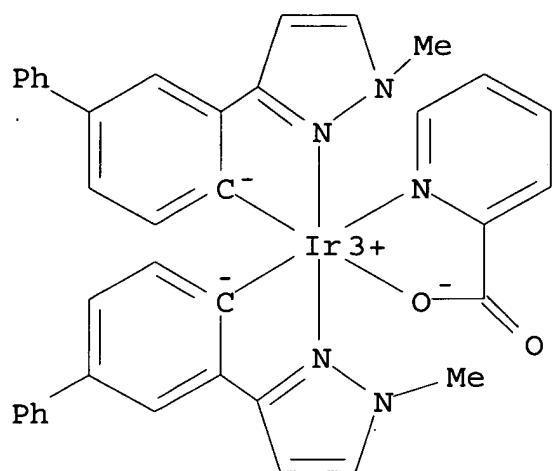
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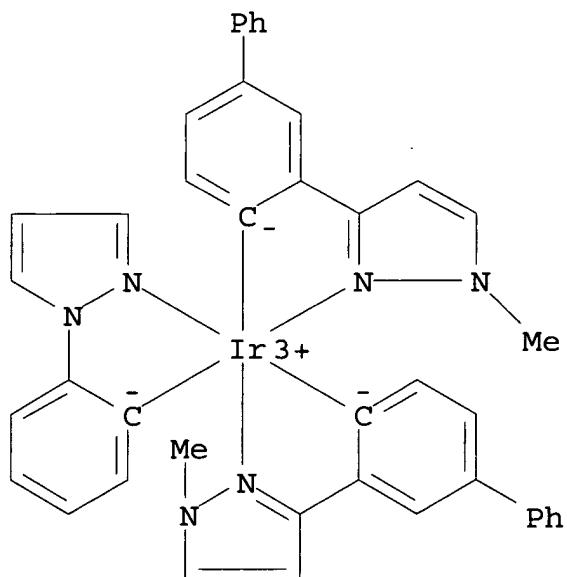
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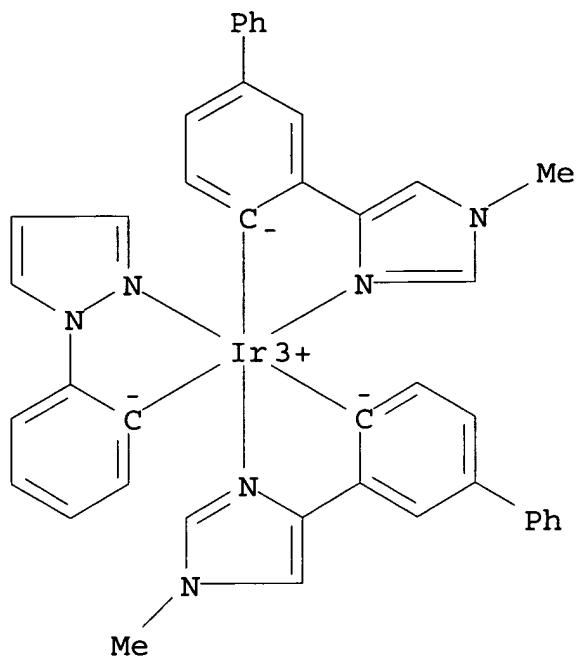
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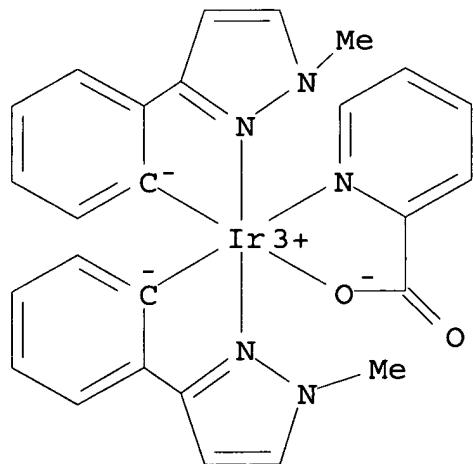
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RN 843611-58-5 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED



RN 843611-59-6 HCAPLUS
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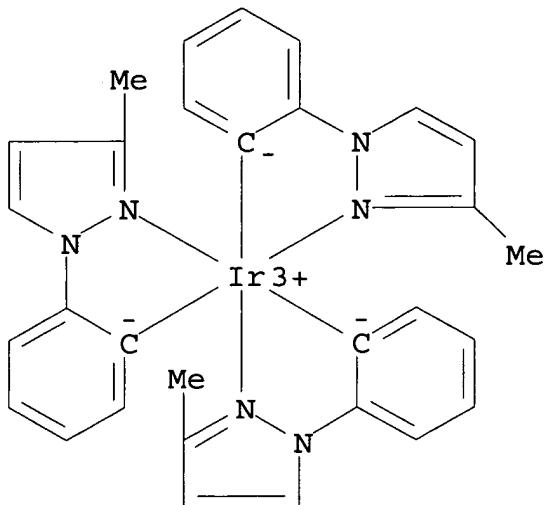


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 843611-18-7P 843611-19-8P 843611-21-2P
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 , fac-Tris(3,5-dimethylphenylpyrazolo)iridium
 (iridium complexes and other metal complexes with
 heterocycle-containing ligands and organic **electroluminescent**
 devices using them)

RN 669067-97-4 HCAPLUS

CN Iridium, tris[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI) (CA INDEX NAME)



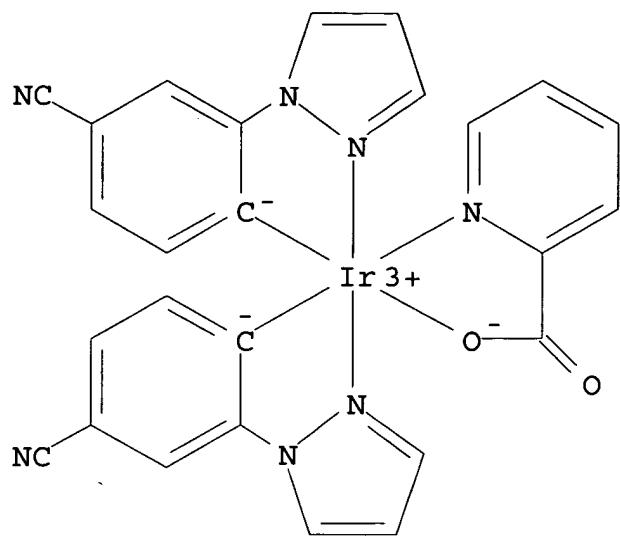
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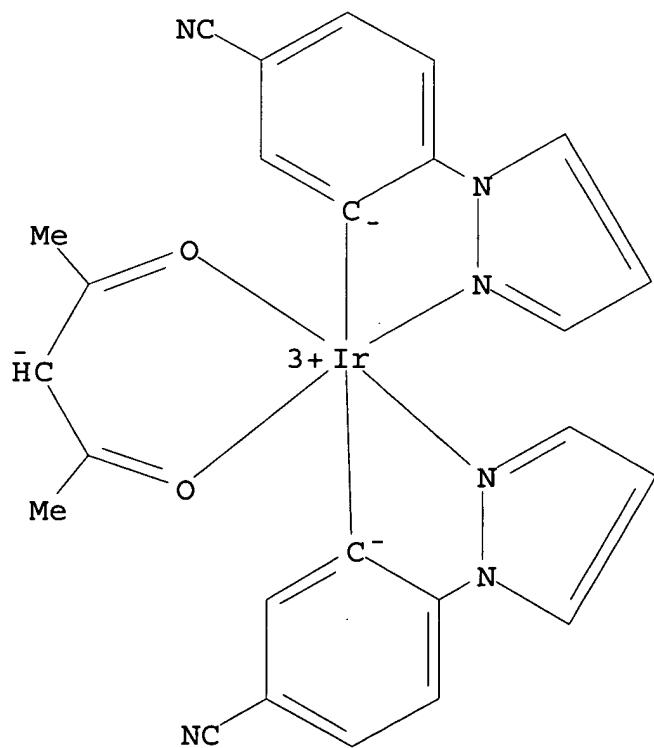
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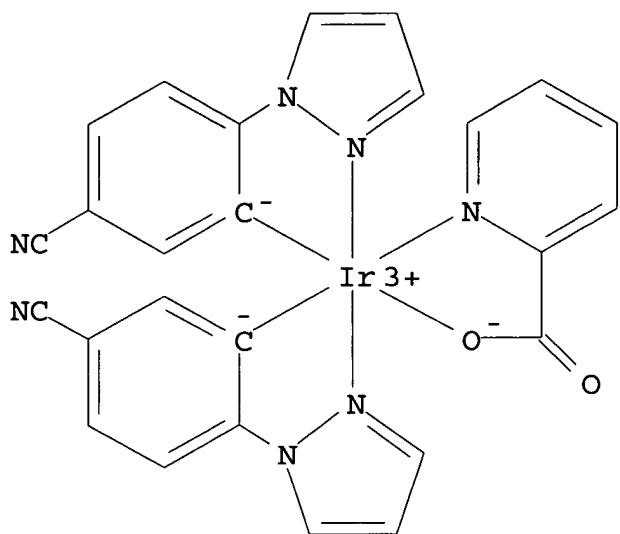
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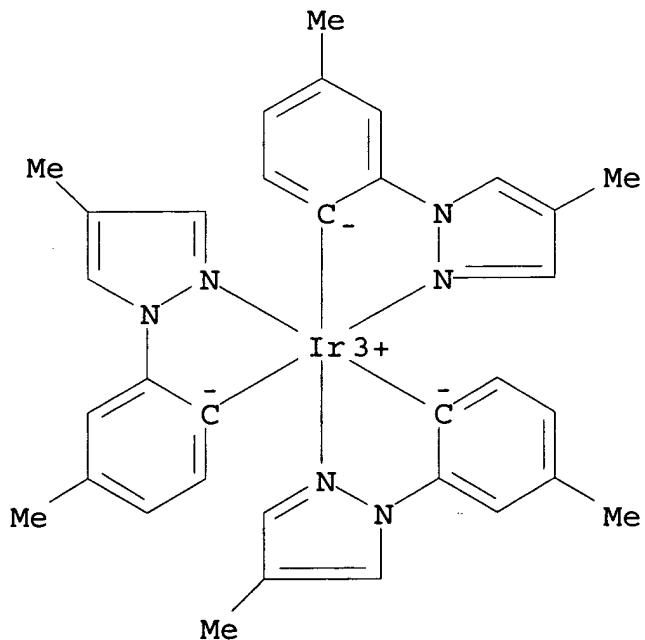
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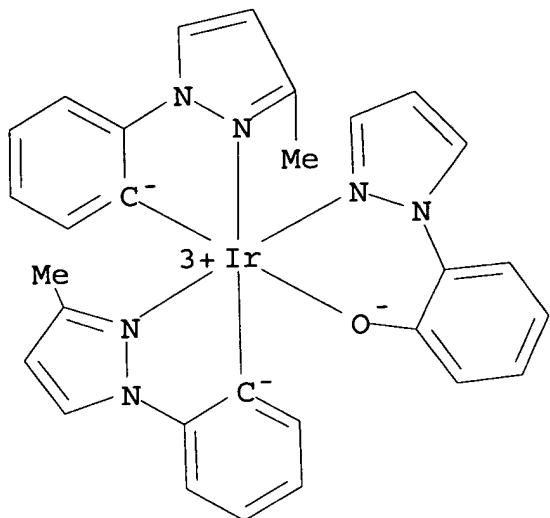
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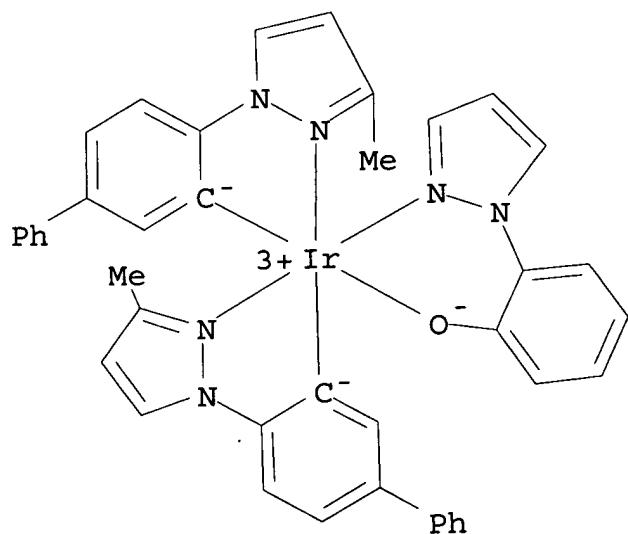
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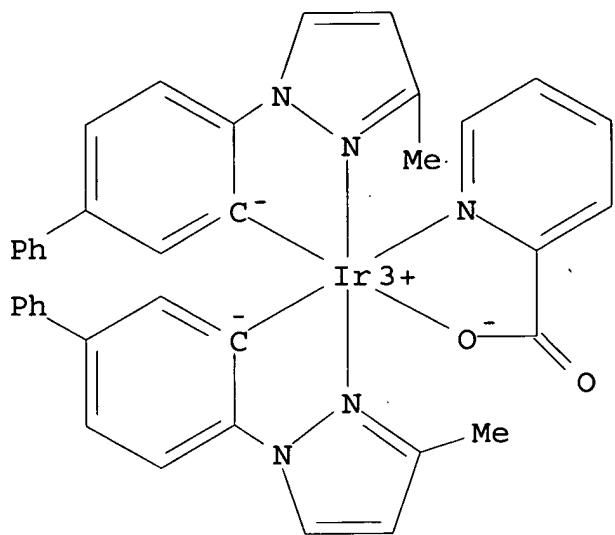
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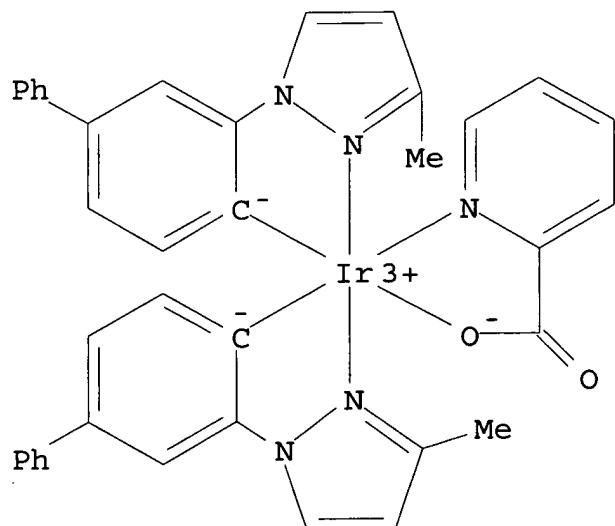
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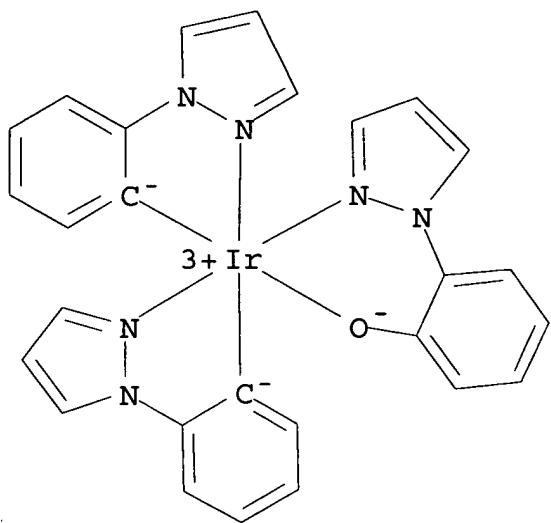
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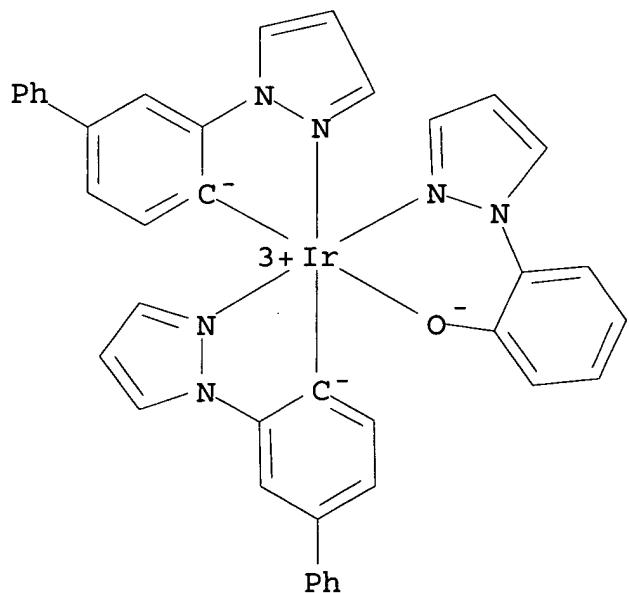
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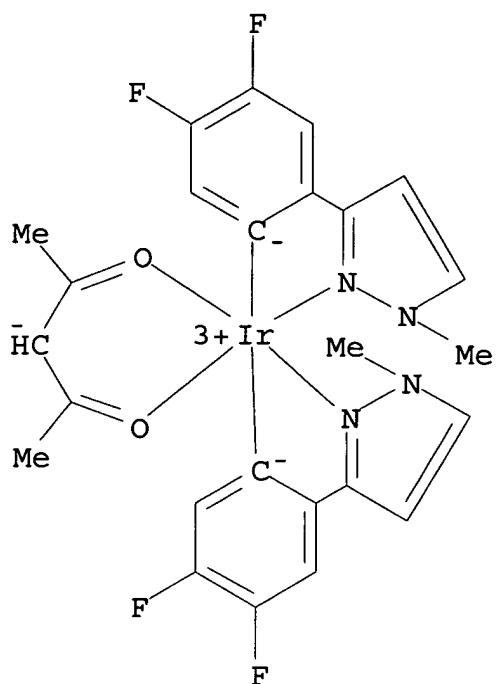
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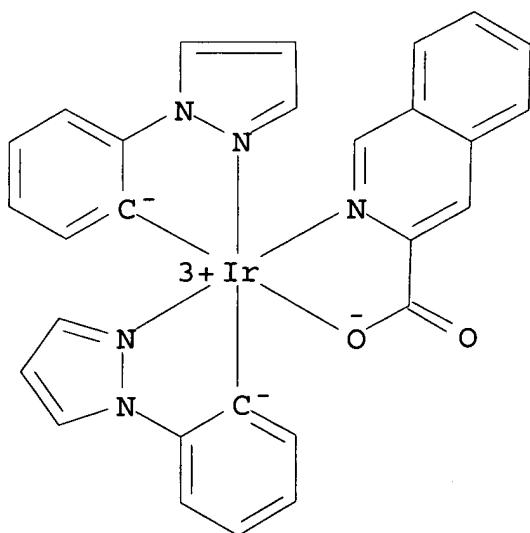
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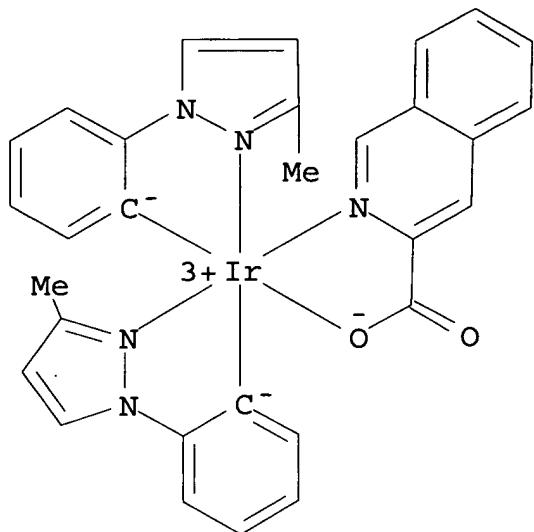
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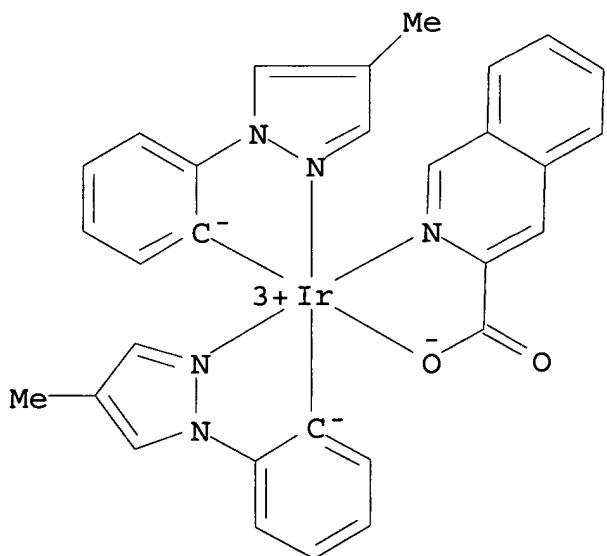
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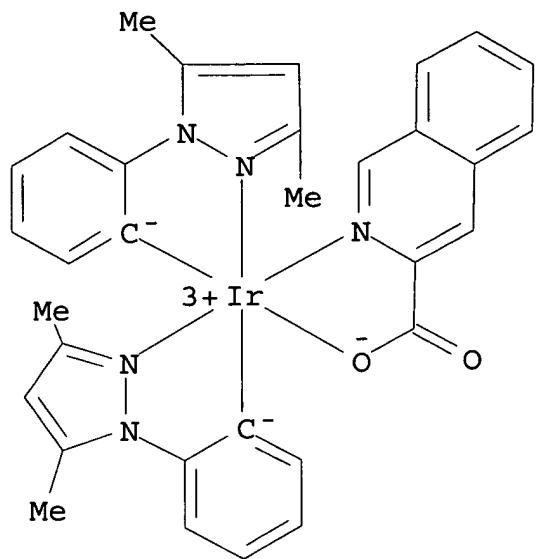
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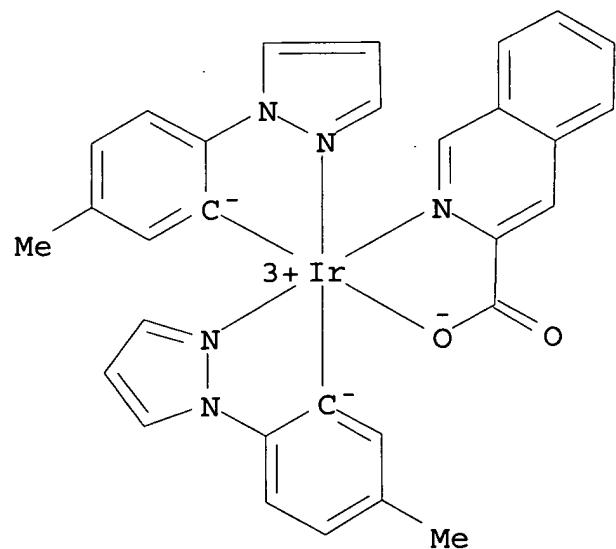
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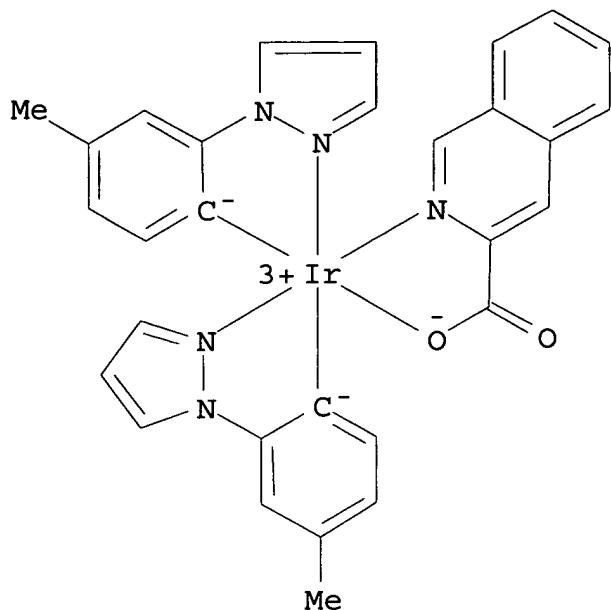
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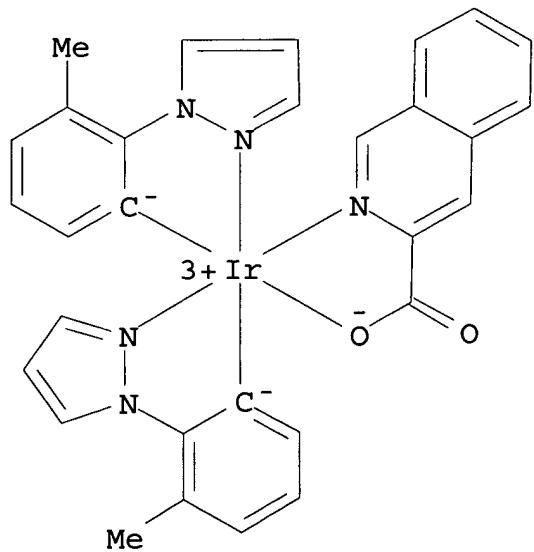
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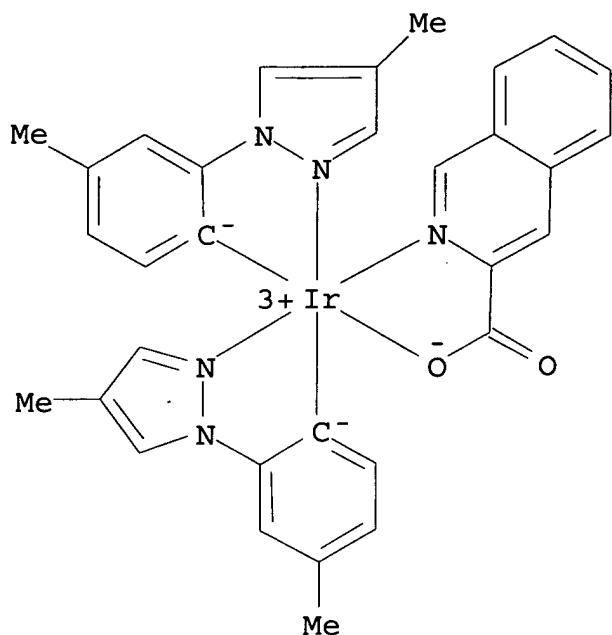
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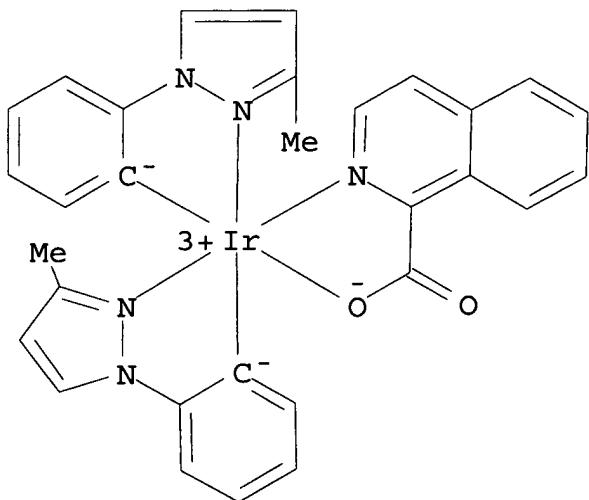
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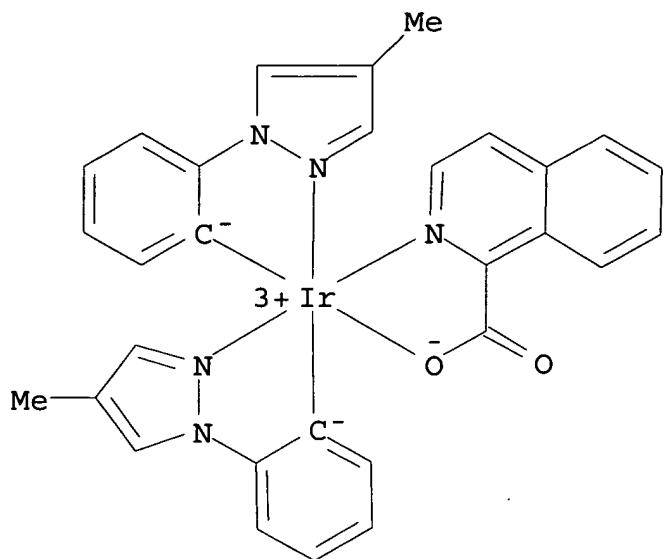
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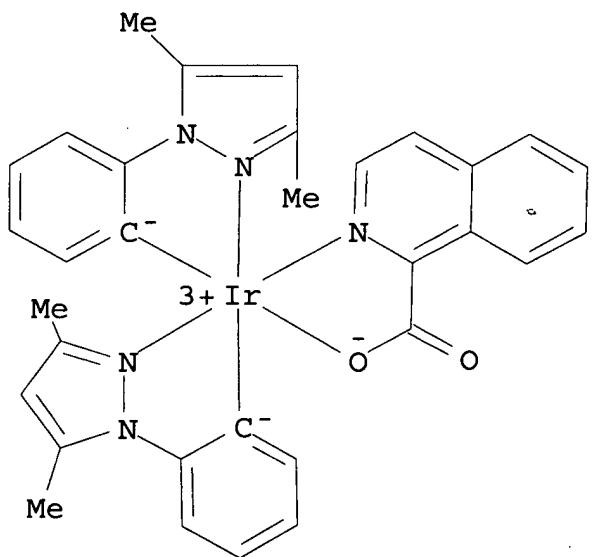
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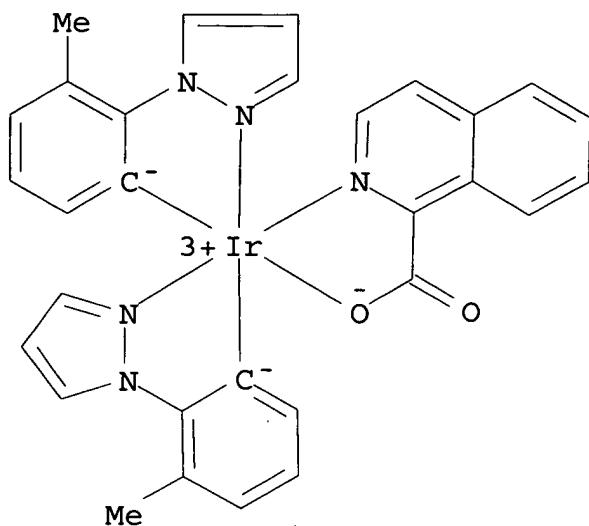
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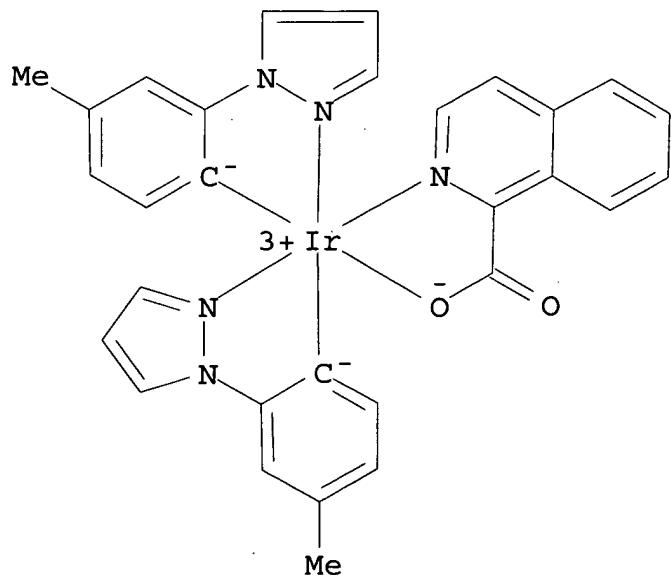
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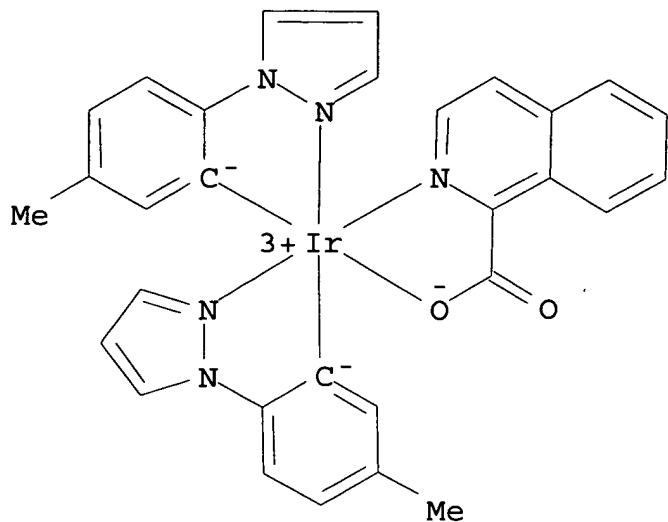
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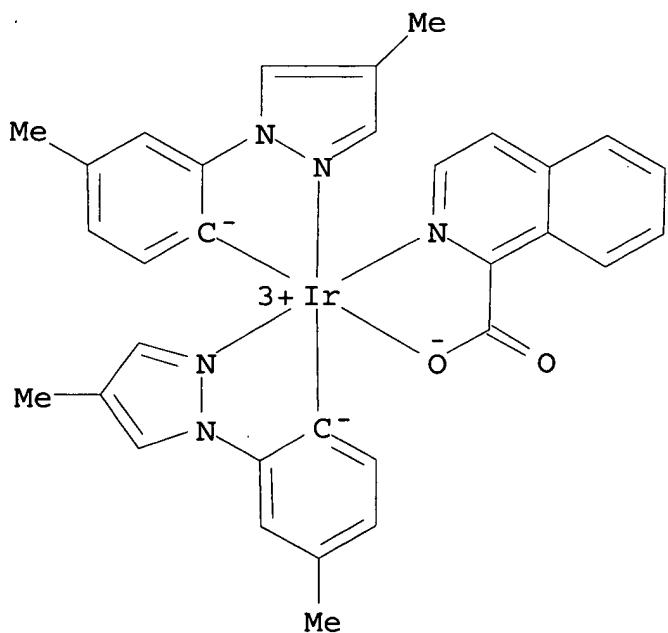
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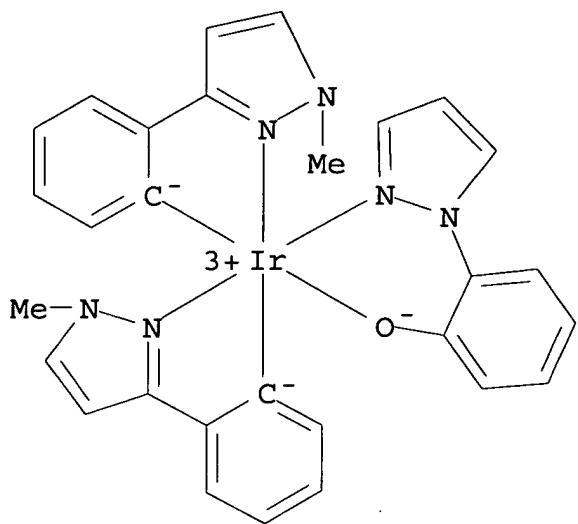
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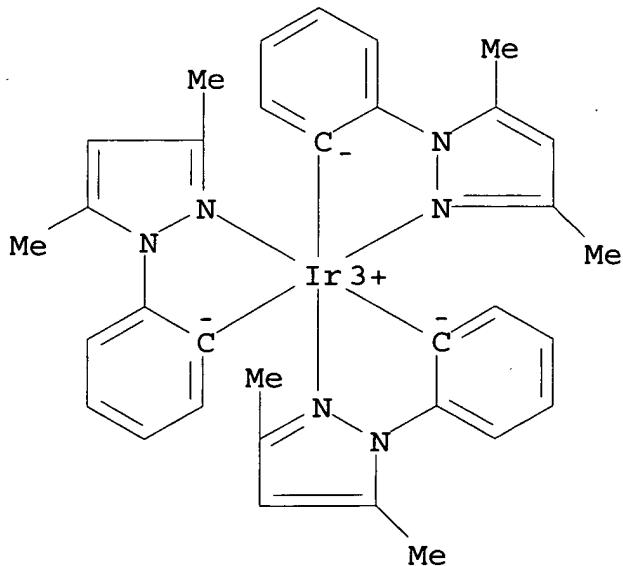
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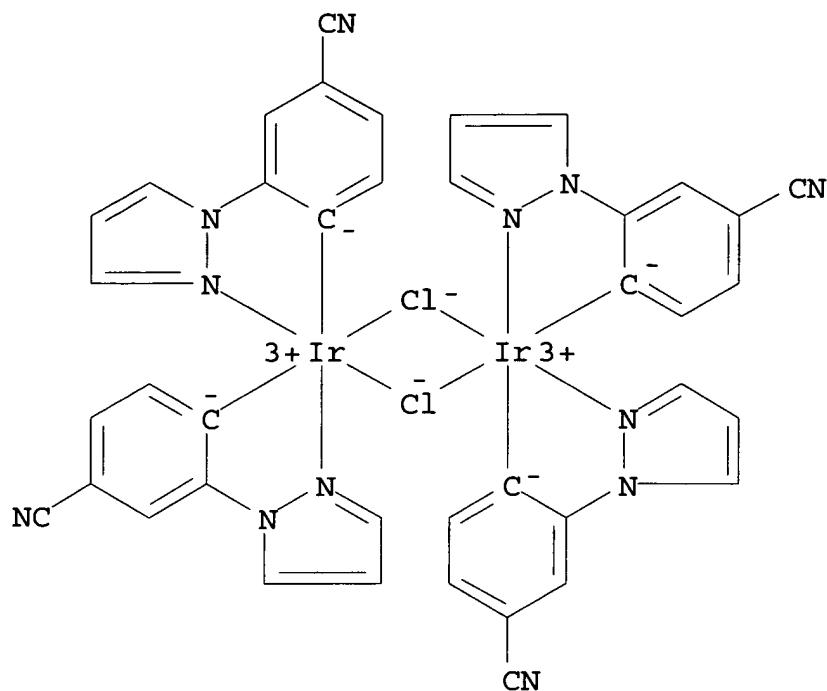
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CN INDEX NAME NOT YET ASSIGNED



RN 844478-08-6 HCPLUS
 CN INDEX NAME NOT YET ASSIGNED



IT 843611-06-3
 (iridium complexes and other metal complexes with
 heterocycle-containing ligands and organic **electroluminescent**
 devices using them)
 RN 843611-06-3 HCPLUS
 CN INDEX NAME NOT YET ASSIGNED

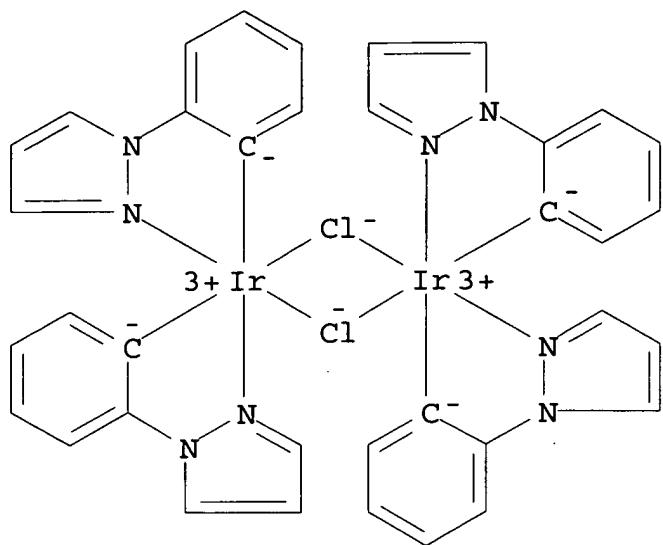


IT 57175-14-1P 631921-37-4P 843611-09-6P
 843611-14-3P 843611-17-6P 843611-20-1P
 843611-22-3P

(iridium complexes and other metal complexes with
 heterocycle-containing ligands and organic **electroluminescent**
 devices using them)

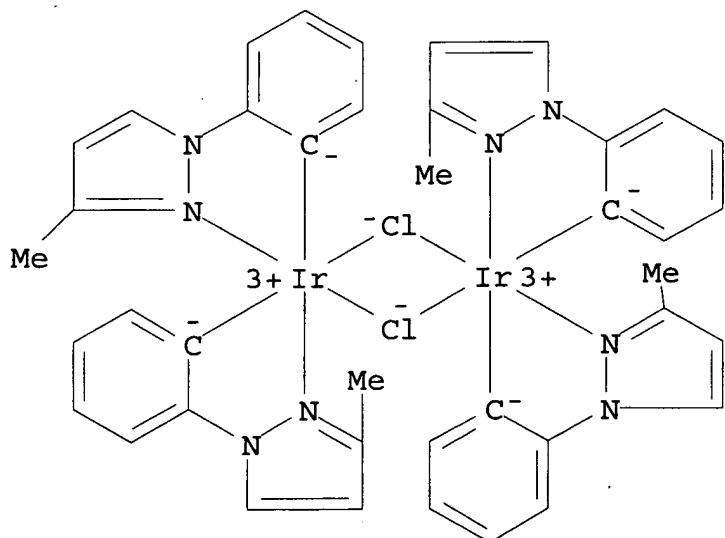
RN 57175-14-1 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,
 stereoisomer (9CI) (CA INDEX NAME)



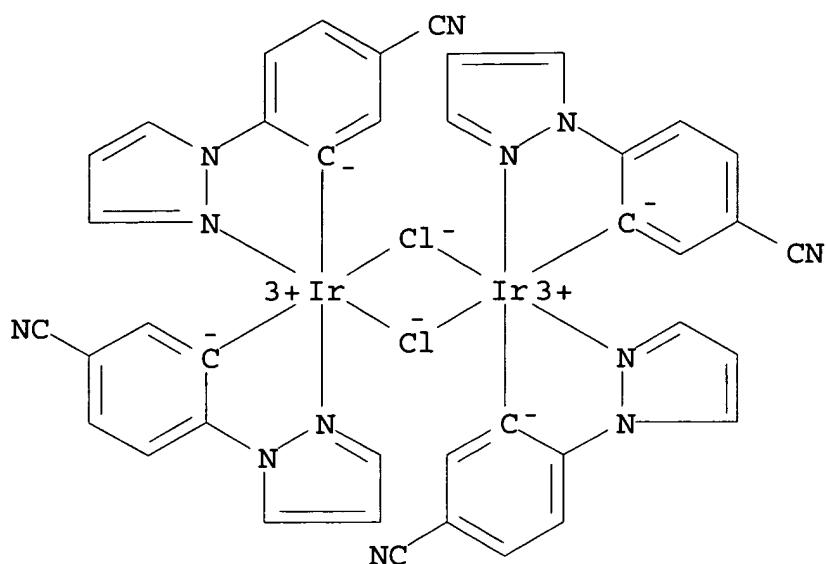
RN 631921-37-4 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)

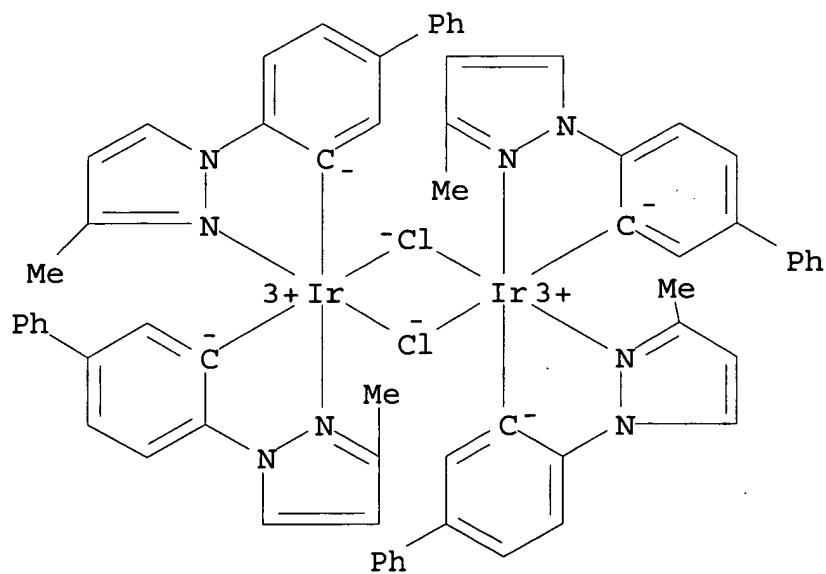


RN 843611-09-6 HCAPLUS

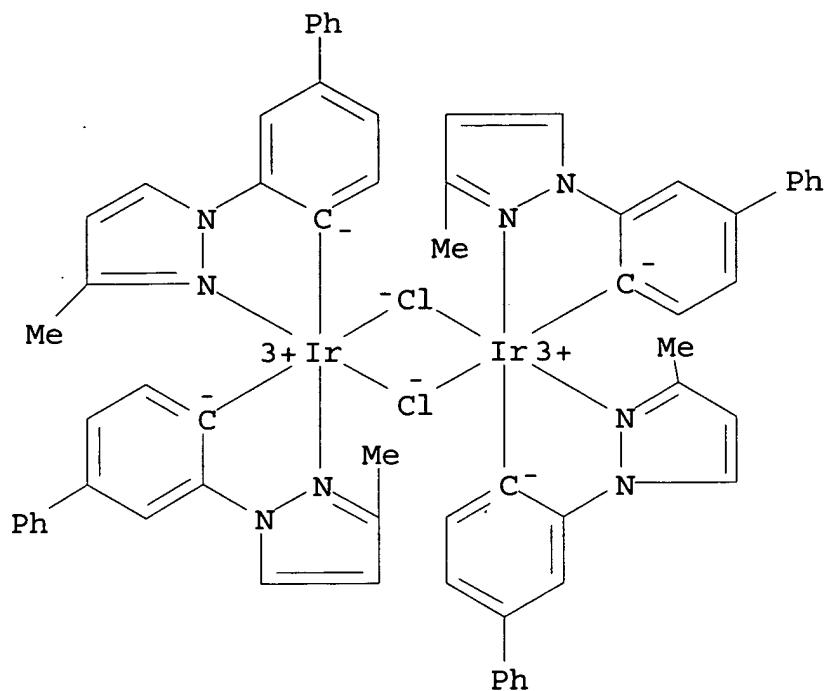
CN INDEX NAME NOT YET ASSIGNED



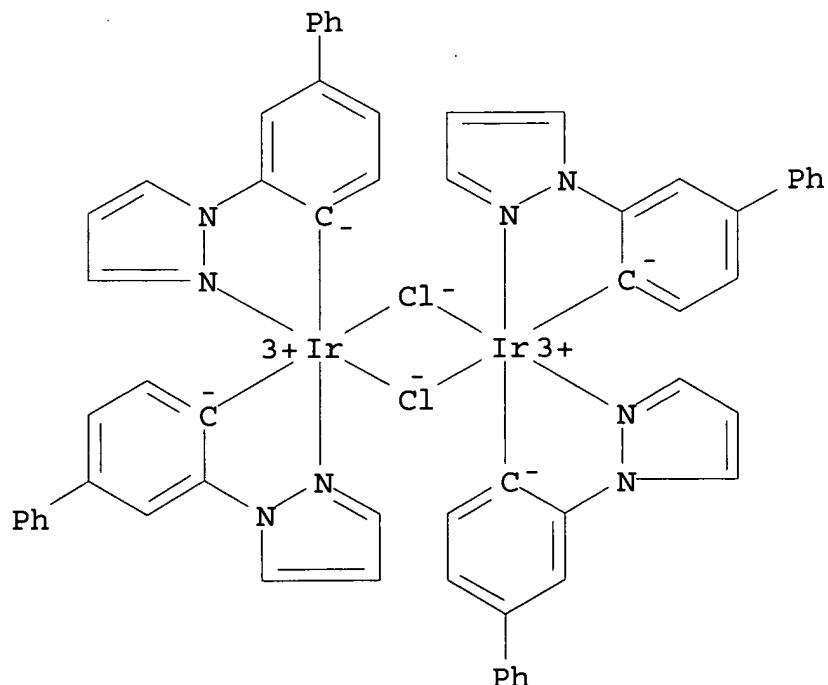
RN 843611-14-3 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED



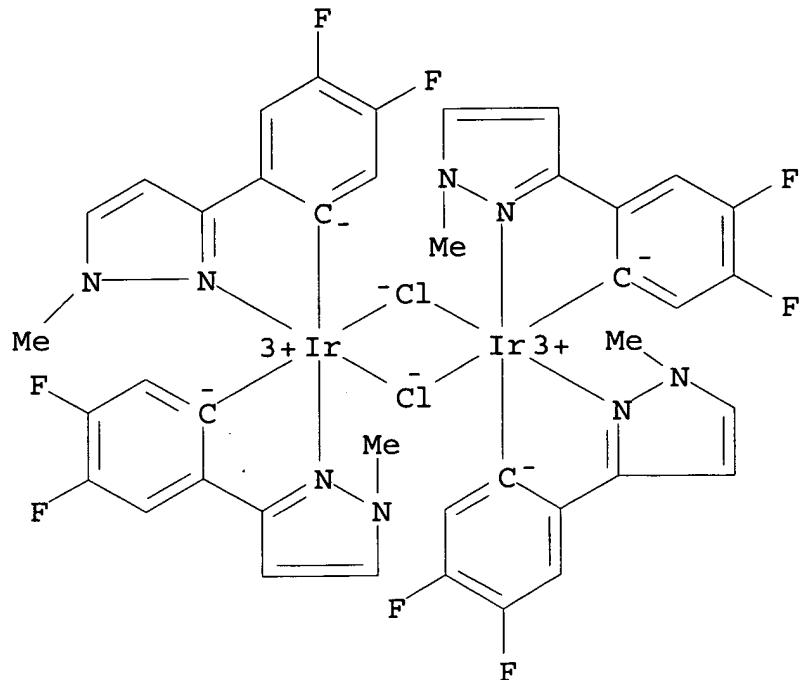
RN 843611-17-6 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED



RN 843611-20-1 HCAPLUS
 CN INDEX NAME NOT YET ASSIGNED



RN 843611-22-3 HCPLUS
 CN INDEX NAME NOT YET ASSIGNED



IC ICM H05B033-14

ICS C09K011-06; C07D231-10; C07D233-54; C07D041-00; C07D043-00

NCL 428690000; 428917000; 313504000; 313506000; 546005000; 546010000;
 548103000; 548106000

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 29, 76

ST iridium complex heterocycle ligand org **electroluminescent**
 device

IT Luminescent substances

(**electroluminescent**; iridium complexes and other
 metal complexes with heterocycle-containing ligands and

organic

electroluminescent devices using them)

IT Luminescent substances

(iridium complexes and other metal complexes with
 heterocycle-containing ligands and organic **electroluminescent**
 devices using them)

IT **Electroluminescent** devices

(organic; iridium complexes and other metal complexes with

heterocycle-containing ligands and organic **electroluminescent** devices using them)

IT 843611-43-8 843611-44-9 843611-45-0
 843611-46-1 843611-47-2 843611-48-3
 843611-49-4 843611-50-7 843611-51-8
 843611-52-9 843611-53-0 843611-54-1
 843611-55-2 843611-56-3 843611-57-4
 843611-58-5 843611-59-6 843611-60-9
 843611-61-0
 (iridium complexes and other metal complexes with heterocycle-containing ligands and organic **electroluminescent** devices using them)

IT 669067-97-4P 832109-94-1P 843611-07-4P
 843611-08-5P 843611-10-9P 843611-11-0P
 843611-12-1P 843611-13-2P 843611-15-4P
 843611-16-5P 843611-18-7P 843611-19-8P
 843611-21-2P 843611-23-4P 843611-24-5P
 843611-26-7P 843611-27-8P 843611-28-9P
 843611-29-0P 843611-30-3P 843611-31-4P
 843611-32-5P 843611-33-6P 843611-34-7P
 843611-35-8P 843611-36-9P 843611-37-0P
 843611-38-1P 843611-39-2P 843611-40-5P
 843611-41-6P 843611-42-7P 844478-08-6P
 , fac-Tris(3,5-dimethylphenylpyrazolo)iridium
 (iridium complexes and other metal complexes with heterocycle-containing ligands and organic **electroluminescent** devices using them)

IT 60-35-5, Acetamide, reactions 70-11-1, 2-Bromoacetophenone 77-78-1, Dimethyl sulfate 98-86-2, Acetophenone, reactions 98-98-6, Picolinic acid 123-54-6, Acetylacetone, reactions 288-13-1, Pyrazole 369-33-5 529-28-2, 2-Iodoanisole 670-95-1, 4-Phenylimidazole 1126-00-7, n-Phenylpyrazole 1128-54-7, 3-Methyl-1-phenylpyrazole 1131-16-4, 3,5-Dimethyl-1-phenylpyrazole 3058-39-7, 4-Iodobenzonitrile 6136-68-1 10025-83-9, Iridium chloride 15435-71-9, Sodium acetylacetone, reactions 15635-87-7, Iridium trisacetylacetone 19005-55-1 69113-59-3, 3-Iodobenzonitrile 842162-93-0 842162-94-1 842162-95-2 843611-06-3
 (iridium complexes and other metal complexes with heterocycle-containing ligands and organic **electroluminescent** devices using them)

IT 2411-77-0P 3463-26-1P 20662-90-2P 25699-82-5P 25699-83-6P
 57175-14-1P 83430-97-1P 207909-05-5P
 631921-37-4P 832109-93-0P 842162-96-3P
 843611-09-6P 843611-14-3P 843611-17-6P
 843611-20-1P 843611-22-3P 843611-25-6P
 (iridium complexes and other metal complexes with

heterocycle-containing ligands and organic **electroluminescent** devices using them)

L16 ANSWER 2 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:34313 HCPLUS
 DOCUMENT NUMBER: 142:103508
 TITLE: **Organic light emitting**
 device structure for obtaining chromaticity
 stability
 INVENTOR(S): Tung, Yeh-Jiun; Ngo, Tan
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 36 pp., Cont.-in-part
 of U.S. Ser. No. 618,160.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----	-----
	-----	-----	-----	-----
	US 2005006642	A1	20050113	US 2004-761980

2004

0120 US 2005006641 A1 20050113 US 2003-618160

2003

0710 PRIORITY APPLN. INFO.: US 2003-618160 A2

2003

0710

AB An organic **light emitting** device is described comprising an anode; an emissive region; and a cathode, wherein the emissive region comprises a first emissive layer, comprising
 a first host material and a first emissive material, and a second emissive layer in phys. contact with the first emissive layer and comprising a second host material and a second emissive material, and wherein: the first emissive layer is nearer to the anode than

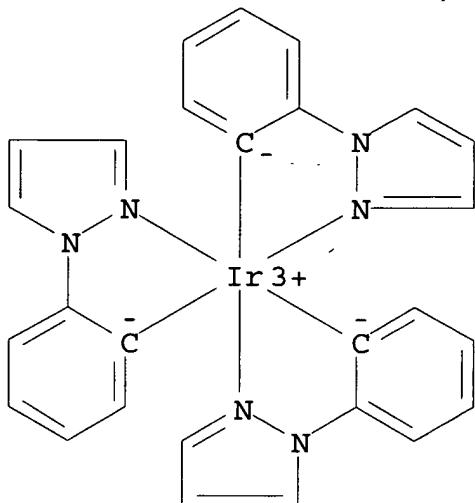
the second emissive layer, and at least one of the first emissive material or the second emissive material is a phosphorescent emissive material.

IT 359014-72-5

(phosphorescent material; organic light emitting device structures using phosphorescent phosphor for obtaining chromaticity stability)

RN 359014-72-5 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI)
(CA INDEX NAME)



IC ICM H01L035-24

NCL 257040000

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 73, 76

ST LED chromaticity phosphorescence phosphor

IT Electroluminescent devices

(displays; organic light emitting device structures using phosphorescent phosphor for obtaining chromaticity stability)

IT Luminescent screens

(electroluminescent; organic light emitting device structures using phosphorescent phosphor for obtaining chromaticity stability)

IT Phosphorescence

Phosphors

(organic light emitting device structures using phosphorescent phosphor for obtaining

chromaticity stability)

IT 147-14-8, Copper phthalocyanine. 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 2085-33-8, Alq3 19205-19-7, N,N'-Dimethylquinacridone 29261-33-4, Tetrafluoro-tetracyano-quinodimethane 50851-57-5 50926-11-9, Indium tin oxide 51325-91-8, DCM 58328-31-7, CBP 80730-94-5 123847-85-8, NPD 124729-98-2 126213-51-2, Poly(3,4-ethylenedioxythiophene) 146162-54-1 150405-69-9, TAZ 192198-85-9, TPBi 550378-78-4 (light emitting device containing; organic light emitting device structures using phosphorescent phosphor for obtaining chromaticity stability)

IT 94928-86-6 337526-95-1 **359014-72-5** 459133-59-6 512182-81-9 664374-04-3 665005-28-7 (phosphorescent material; organic light emitting device structures using phosphorescent phosphor for obtaining chromaticity stability)

L16 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:34312 HCAPLUS
 DOCUMENT NUMBER: 142:103507
 TITLE: Organic light emitting device structures for obtaining chromaticity stability
 INVENTOR(S): Tung, Yeh-Jiun; Lu, Michael; Kwong, Raymond C.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 30 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----
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US 2005006641	A1	20050113	US 2003-618160

2003

0710	US 2005006642	A1	20050113	US 2004-761980
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2004

0120

PRIORITY APPLN. INFO.:

US 2003-618160

A2

2003

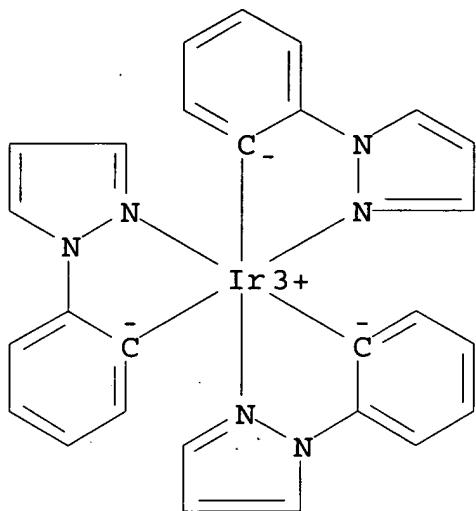
0710

AB An organic **light emitting** device is described comprising an emissive region disposed between and elec. connected to an anode and a cathode, wherein the emissive region comprises: a first emissive layer, comprising a first host material and a first emissive material, and a second emissive layer in phys. contact with the first emissive layer and comprising a second host material and a second emissive material, and wherein the contact between the first emissive layer and the second emissive layer provides an electron injection barrier, a hole injection barrier, or both, the first emissive layer is nearer to the anode than the second emissive layer, at least one of the first emissive material or the second emissive material is a **phosphorescent** emissive material, and wherein the device **emits** with CIE x,y-coordinates that vary <.apprx.0.04 over the **luminance** range of about 1000 cd/m² to about 20,000 cd/m².

IT 359014-72-5
(**phosphorescent** material; organic **light emitting** device structures using **phosphorescent** phosphor for obtaining chromaticity stability)

RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI)
(CA INDEX NAME)



IC ICM H01L051-00

NCL 257040000

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 73, 76

ST LED **phosphorescence** phosphor iridium complex chromaticity

IT **Electroluminescent** devices

(displays; organic **light emitting** device structures using **phosphorescent** phosphor for obtaining chromaticity stability)

IT **Luminescent** screens

(**electroluminescent**; organic **light emitting** device structures using **phosphorescent** phosphor for obtaining chromaticity stability)

IT **Phosphorescence**

Phosphors

(organic **light emitting** device structures using **phosphorescent** phosphor for obtaining chromaticity stability)

IT 147-14-8, Copper phthalocyanine. 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 2085-33-8, Alq3 19205-19-7, N,N'-Dimethylquinacridone 29261-33-4, Tetrafluoro-tetracyano-quinodimethane 50851-57-5 50926-11-9, Indium tin oxide 51325-91-8, DCM 58328-31-7, CBP 123847-85-8, NPD

124729-98-2

126213-51-2, Poly(3,4-ethylenedioxythiophene) 146162-54-1

150405-69-9, TAZ 192198-85-9, TPBi 550378-78-4

(**light emitting** device containing; organic

light emitting device structures using
phosphorescent phosphor for obtaining chromaticity
stability)

IT 94928-86-6 337526-95-1 359014-72-5 459133-59-6
512182-81-9 664374-04-3 665005-28-7
(phosphorescent material; organic light
emitting device structures using phosphorescent
phosphor for obtaining chromaticity stability)

L16 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:817901 HCAPLUS
DOCUMENT NUMBER: 141:340107
TITLE: Phenyl-pyrazole and carbazole-pyrazole
derivative complexes and light-
emitting devices using them
INVENTOR(S): Thompson, Mark E.; Tamayo, Arnold; Djurovich,
Peter
PATENT ASSIGNEE(S): The University of Southern California, USA
SOURCE: PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			
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WO 2004085450	A2	20041007	WO 2004-US9228

2004

0324

WO 2004085450	A3	20041125
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	

US 2004253478 A1 20041216 US 2004-807738

2004

0324

PRIORITY APPLN. INFO.:

US 2003-457012P P

2003

0324

OTHER SOURCE(S) : MARPAT 141:340107

AB Heteroleptic compds. of (un)substituted phenyl-pyrazole ligands and heteroleptic and homoleptic compds. of (un)substituted carbazole-pyrazole ligands with metals having atomic wts. >40 are described. Compds. comprising a metal bonded to a first ligand that has a triplet energy corresponding to a wavelength that is greater than the wavelength corresponding to the triplet energy

of

every other ligand bound to the metal are also described. The metal is preferably selected from Ir, Pt, Pd, Rh, Re, Ru, Os, Ti, Pb, Bi, In, Sn, Sb, Te, Au, and Ag, especially Ir. Organic light-emitting devices employing the compds. in their emitting layers are also described.

IT 769950-80-3P 769950-81-4P 769950-82-5P

769950-83-6P 769950-84-7P 769950-85-8P

769950-86-9P 769950-87-0P 769950-88-1P

769950-89-2P

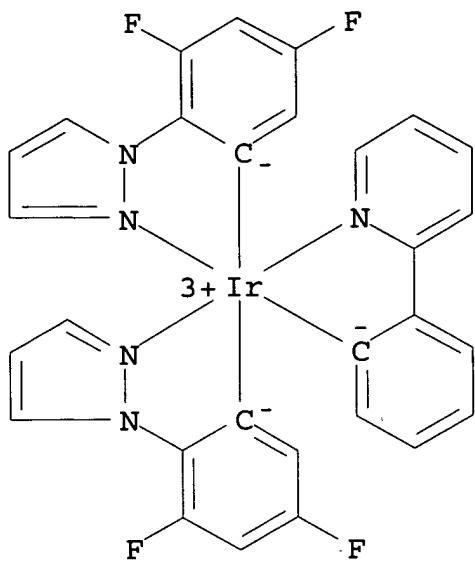
(phenyl-pyrazole and carbazole-pyrazole derivative complexes

and

light-emitting devices using them)

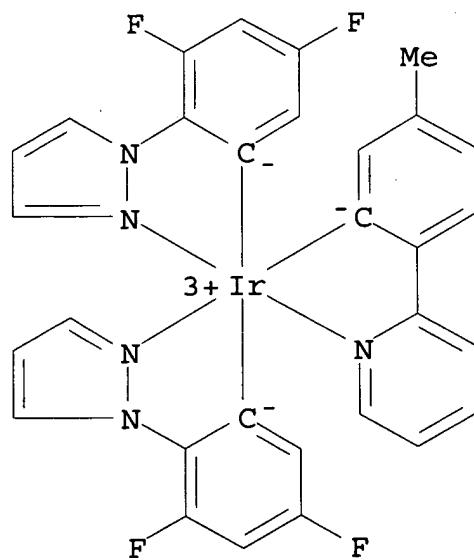
RN 769950-80-3 HCPLUS

CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] [2-(2-pyridinyl- κ N)phenyl- κ C] - (9CI) (CA
INDEX NAME)



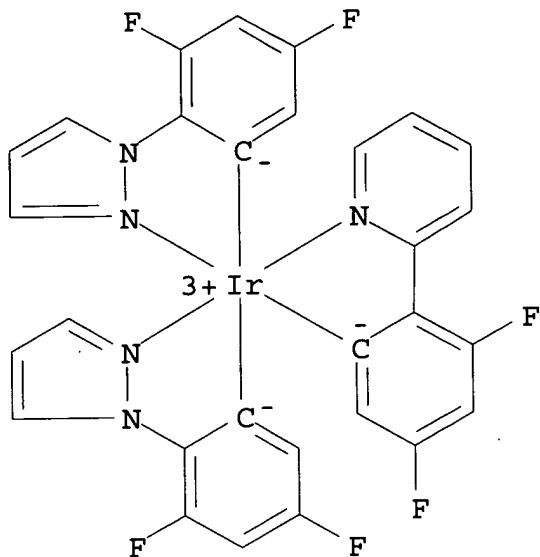
RN 769950-81-4 HCPLUS

CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl-κN2)phenyl-κC][5-methyl-2-(2-pyridinyl-κN)phenyl-κC] - (9CI)
(CA INDEX NAME)



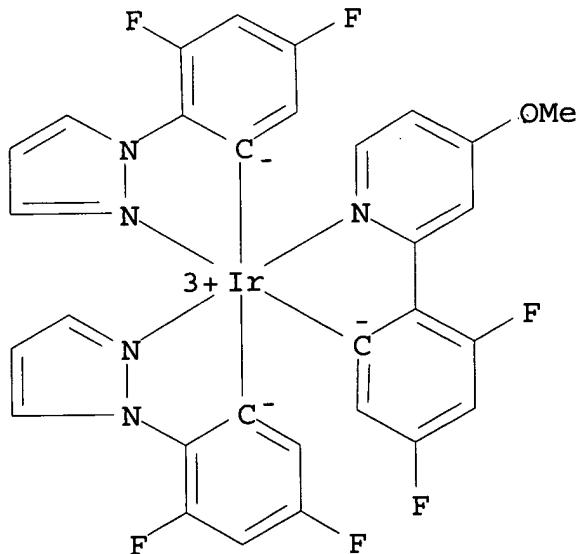
RN 769950-82-5 HCPLUS

CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl-κN2)phenyl-κC][3,5-difluoro-2-(2-pyridinyl-κN)phenyl-κC] - (9CI) (CA INDEX NAME)



RN 769950-83-6 HCPLUS

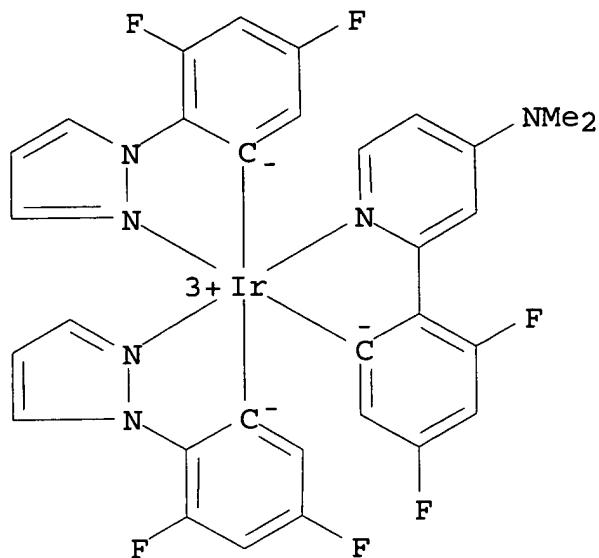
CN Iridium, [3,5-difluoro-2-(4-methoxy-2-pyridinyl-κN)phenyl-κC]bis[3,5-difluoro-2-(1H-pyrazol-1-yl-κN2)phenyl-κC] - (9CI) (CA INDEX NAME)



RN 769950-84-7 HCPLUS

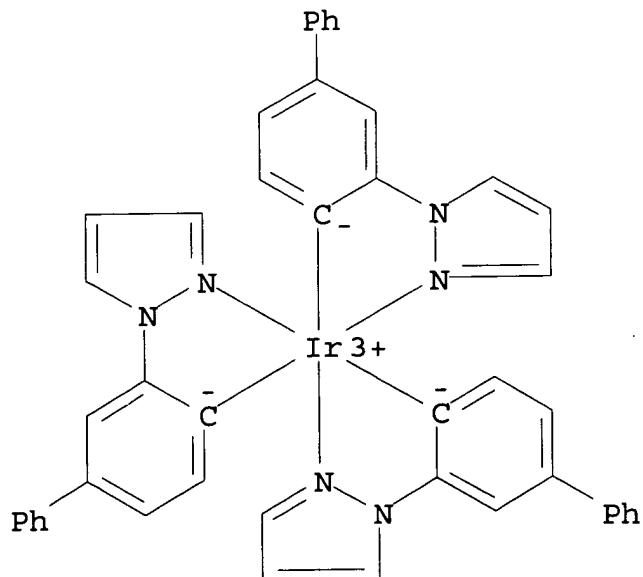
CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl-κN2)phenyl-κC] [2-[4-(dimethylamino)-2-pyridinyl-κN]-3,5-

difluorophenyl- κ C] - (9CI) (CA INDEX NAME)



RN 769950-85-8 HCPLUS

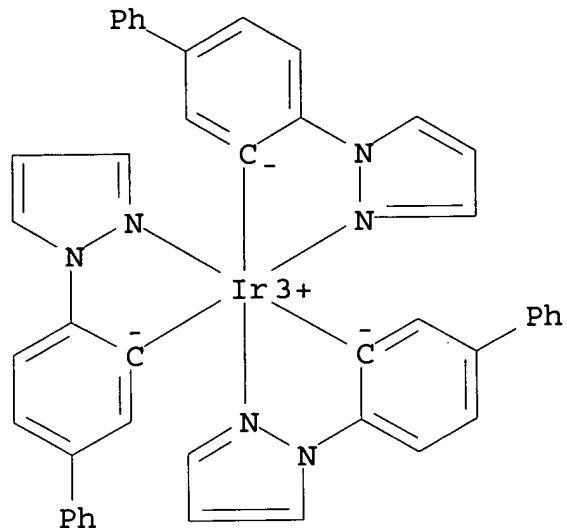
CN Iridium, tris[3-(1H-pyrazol-1-yl-κN2)[1,1'-biphenyl]-4-yl-κC] -, (OC-6-22) - (9CI) (CA INDEX NAME)



RN 769950-86-9 HCPLUS

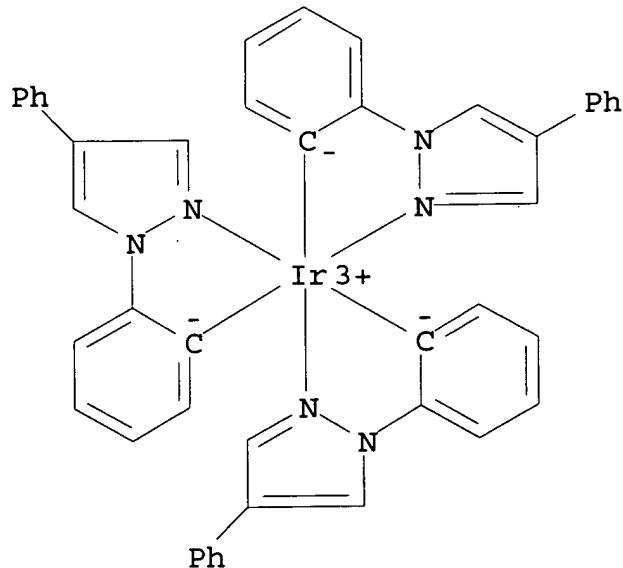
CN Iridium, tris[4-(1H-pyrazol-1-yl-κN2)[1,1'-biphenyl]-3-yl-

κ C] -, (OC-6-22) - (9CI) (CA INDEX NAME)



RN 769950-87-0 HCPLUS

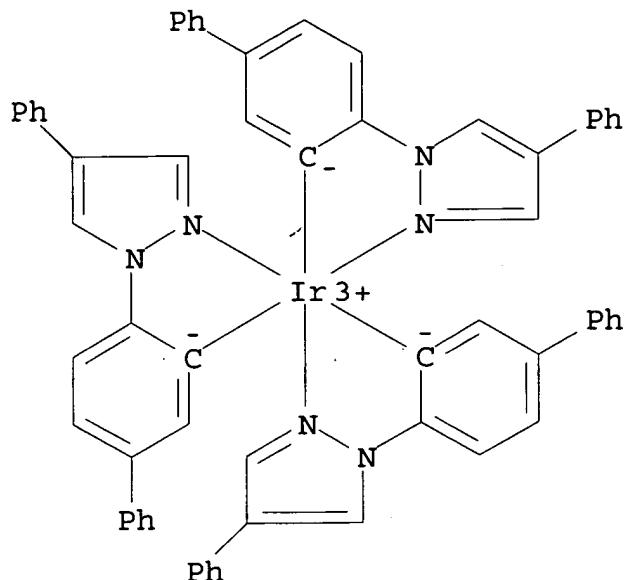
CN Iridium, tris[2-(4-phenyl-1H-pyrazol-1-yl-κN2)phenyl-
 κ C] -, (OC-6-22) - (9CI) (CA INDEX NAME)



RN 769950-88-1 HCPLUS

CN Iridium, tris[4-(4-phenyl-1H-pyrazol-1-yl-κN2)[1,1'-biphenyl]-
 κ C] -, (OC-6-22) - (9CI) (CA INDEX NAME)

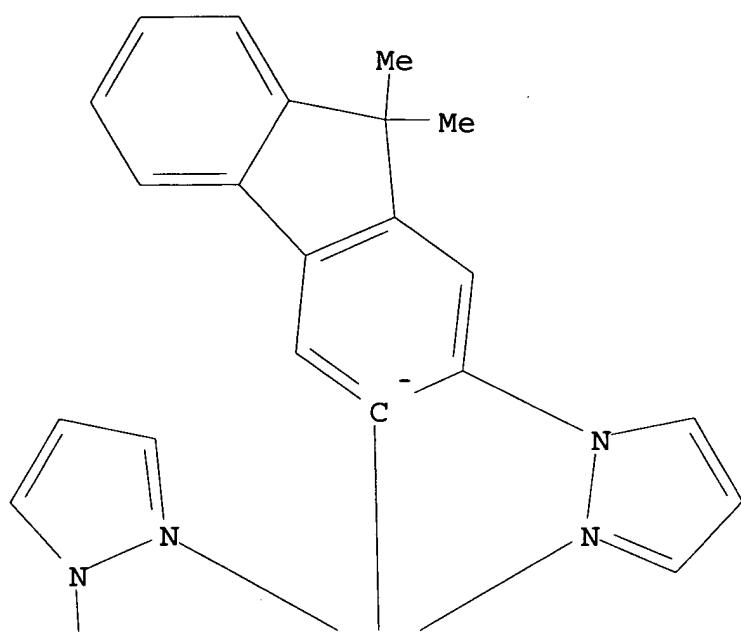
biphenyl]-3-yl- κ C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



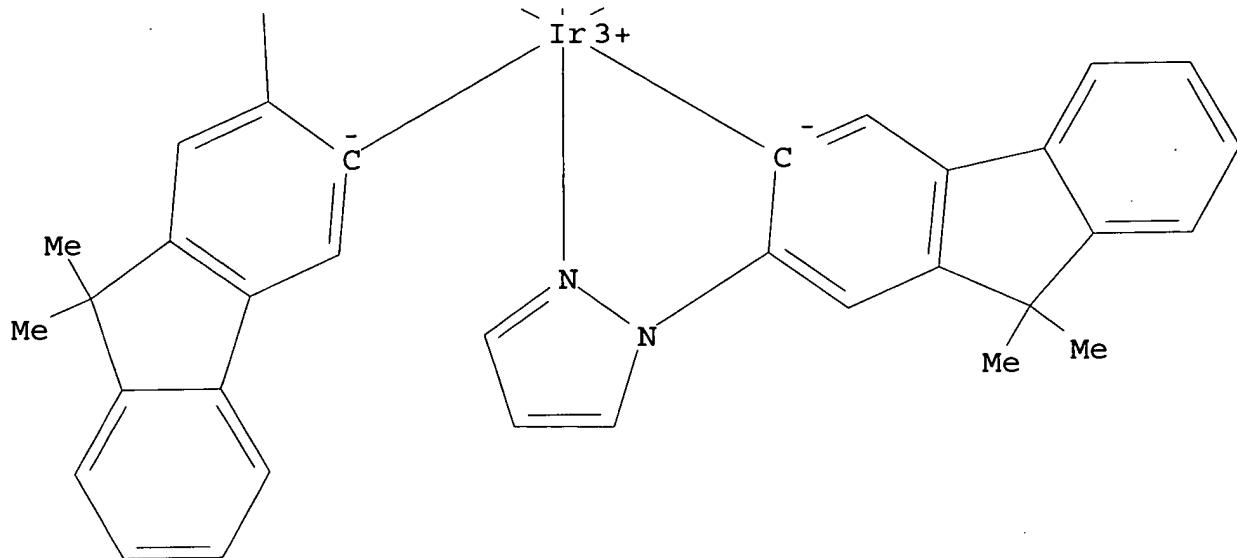
RN 769950-89-2 HCAPLUS

CN Iridium, tris[9,9-dimethyl-2-(1H-pyrazol-1-yl- κ N2)-9H-fluoren-3-yl- κ C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

PAGE 1-A

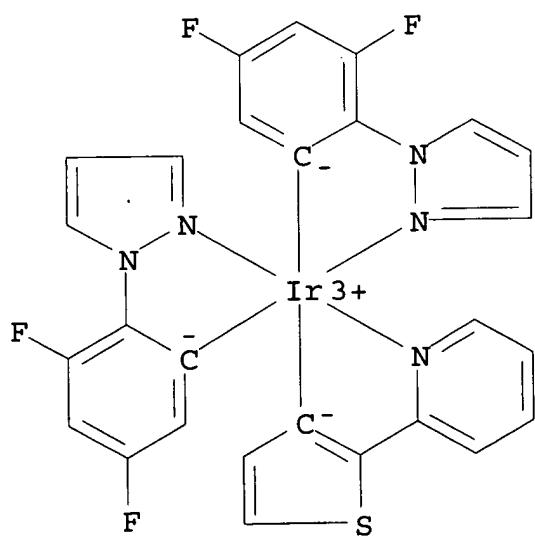


PAGE 2-A



IT 769950-90-5
 (phenyl-pyrazole and carbazole-pyrazole derivative complexes
 and
 light-emitting devices using them)

RN 769950-90-5 HCPLUS
 CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] [2-(2-pyridinyl- κ N)-3-thienyl- κ C] - (9CI) (CA
 INDEX NAME)



IC ICM C07F017-00
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29, 76
ST phenyl pyrazole deriv complex light emitting device; carbazole pyrazole deriv complex light emitting device
IT Electroluminescent devices
(organic; phenyl-pyrazole and carbazole-pyrazole derivative complexes
and light-emitting devices using them)
IT Phosphorescent substances
(phenyl-pyrazole and carbazole-pyrazole derivative complexes
and light-emitting devices using them)
IT 769950-80-3P 769950-81-4P 769950-82-5P
769950-83-6P 769950-84-7P 769950-85-8P
769950-86-9P 769950-87-0P 769950-88-1P
769950-89-2P
(phenyl-pyrazole and carbazole-pyrazole derivative complexes
and light-emitting devices using them)
IT 7439-92-1D, Lead, compds. with organic ligands 7440-04-2D,
Osmium, compds. with organic ligands 7440-05-3D, Palladium, compds.
with organic ligands 7440-06-4D, Platinum, compds. with organic
ligands 7440-15-5D, Rhenium, compds. with organic ligands 7440-16-6D,
Rhodium, compds. with organic ligands 7440-18-8D, Ruthenium,
compds. with organic ligands 7440-22-4D, Silver, compds. with
organic ligands 7440-31-5D, Tin, compds. with organic ligands
7440-32-6D,
Titanium, compds. with organic ligands 7440-36-0D, Antimony,
compds. with organic ligands 7440-57-5D, Gold, compds. with
organic ligands 7440-69-9D, Bismuth, compds. with organic ligands 13494-80-9D,
7440-74-6D, Indium, compds. with organic ligands
Tellurium, compds. with organic ligands 769950-90-5
(phenyl-pyrazole and carbazole-pyrazole derivative complexes
and light-emitting devices using them)

L16 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:576336 HCAPLUS

DOCUMENT NUMBER: 141:267654
TITLE: Synthesis, photophysical and electrochemical properties, and biological labeling studies
of
AUTHOR(S): luminescent cyclometalated iridium(III) bipyridine-aldehyde complexes
Lo, Kenneth Kam-Wing; Chan, Joe Sai-Wan; Chung, Chi-Keung; Tsang, Vic Wing-Hang; Zhu, Nianyong
CORPORATE SOURCE: Department of Biology and Chemistry, City University of Hong Kong, Hong Kong, Kowloon, Peop. Rep. China
SOURCE: Inorganica Chimica Acta (2004), 357(10), 3109-3118
CODEN: ICHAA3; ISSN: 0020-1693
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:267654
AB Synthesis, characterization, and photophys. and electrochem. properties of a series of luminescent cyclometalated iridium(III) bipyridine-aldehyde complexes [Ir(N-C)2(bpy-CHO)] (PF6) (HN-C = 2-phenylpyridine, Hppy (1); 2-(4-methylphenyl)pyridine, Hmppy (2); 1-phenylpyrazole, Hppz (3); 3-methyl-1-phenylpyrazole, Hmppz (4); 7,8-benzoquinoline, Hbzq (5); 2-phenylquinoline, Hpq (6); bpy-CHO = 4-formyl-4'-methyl-2,2'-bipyridine) is reported. The x-ray crystal structures of complexes 1 and 4 have been determined. On the basis of the photophys. data, the emission of these complexes is assigned to an excited state of predominantly triplet metal-to-ligand charge-transfer (3MLCT) ($d\pi(\text{Ir}) \rightarrow \pi^*(\text{bpy-CHO})$) character. For complex 6, the excited state is also mixed with substantial (3IL) ($\pi \rightarrow \pi^*$) (pq-) character. The protein bovine serum albumin has been labeled with these complexes to produce luminescent bioconjugates. The photophys. properties of the luminescent conjugates have also been investigated.
IT 756486-02-9P (crystal structure; synthesis, photophys., electrochem. properties, and bovine serum albumin labeling studies of luminescent cyclometalated iridium bipyridine-aldehyde complexes)
RN 756486-02-9 HCAPLUS
CN Iridium(1+), bis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C1] (4'-methyl[2,2'-bipyridine]-4-carboxaldehyde-

κ N1, κ N1')-, (OC-6-14)-, hexafluorophosphate(1-),
compd. with dichloromethane (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 75-09-2
CMF C H2 Cl2

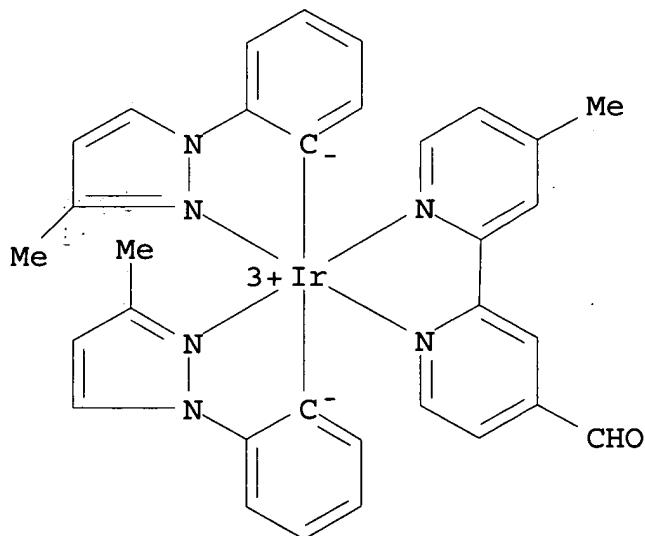
$$\text{Cl} - \text{CH}_2 - \text{Cl}$$

CM 2

CRN 756485-96-8
CMF C32 H28 Ir N6 O . F6 P

CM 3

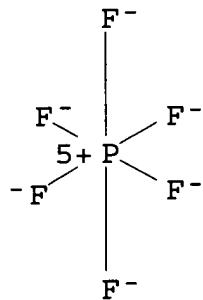
CRN 756485-95-7
CMF C32 H28 Ir N6 O
CCI CCS



CM 4

CRN 16919-18-9

CMF F6 P
CCI CCS

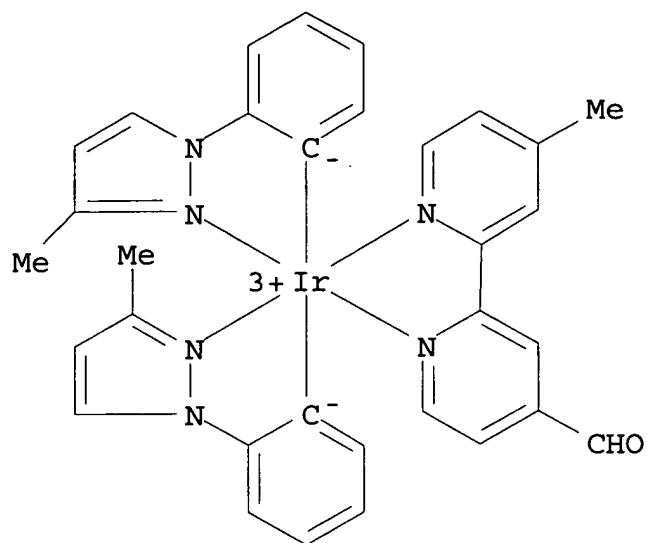


IT 756485-96-8P
(mol. structure; synthesis, photophys., electrochem. properties, and bovine serum albumin labeling studies of luminescent cyclometalated iridium bipyridine-aldehyde complexes)

RN 756485-96-8 HCPLUS
CN Iridium(1+), (4'-methyl[2,2'-bipyridine]-4-carboxaldehyde- κ N1, κ N1')bis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-14)-, hexafluorophosphate(1-)
(9CI) (CA INDEX NAME)

CM 1

CRN 756485-95-7
CMF C32 H28 Ir N6 O
CCI CCS

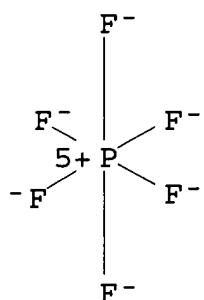


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 756485-94-6P

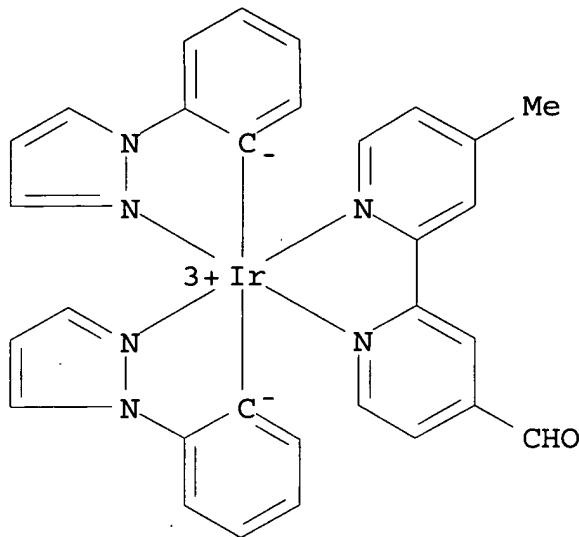
(synthesis, photophys., electrochem. properties, and bovine serum albumin labeling studies of **luminescent** cyclometalated iridium bipyridine-aldehyde complexes)

RN 756485-94-6 HCPLUS

CN Iridium(1+), (4'-methyl[2,2'-bipyridine]-4-carboxaldehyde- κ N1, κ N1')bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] -, (OC-6-14) -, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

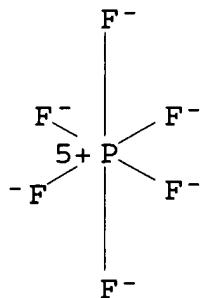
CM 1

CRN 756485-93-5
 CMF C30 H24 Ir N6 O
 CCI CCS



CM 2

CRN 16919-18-9
 CMF F6 P
 CCI CCS

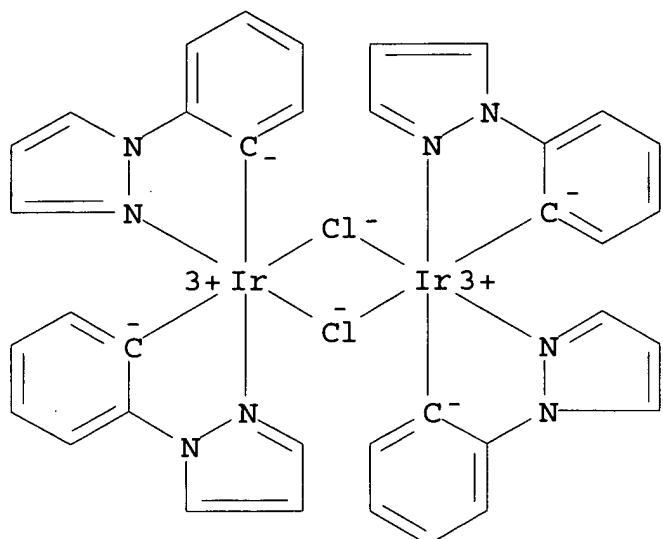


IT 57175-14-1 631921-37-4
 (synthesis, photophys., electrochem. properties, and bovine

serum albumin labeling studies of **luminescent**
cyclometalated iridium bipyridine-aldehyde complexes)

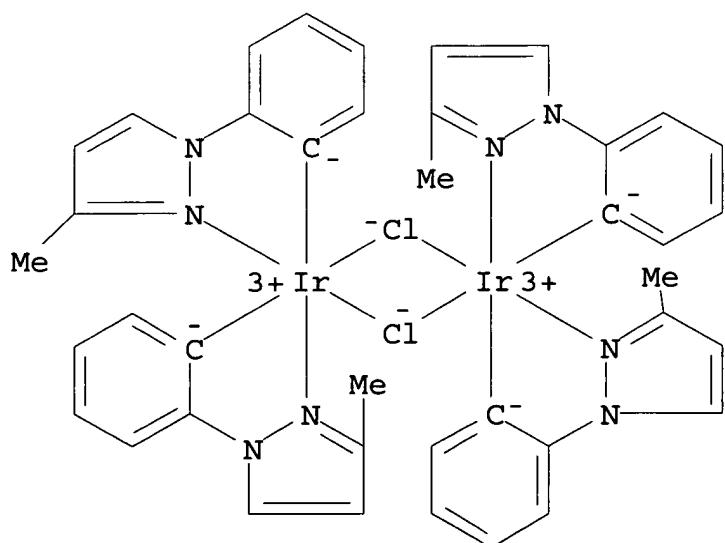
RN 57175-14-1 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,
stereoisomer (9CI) (CA INDEX NAME)



RN 631921-37-4 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 6, 29, 72, 75
ST cyclometalated iridium bipyridine aldehyde complex prepn
photophys
electrochem labeling; bovine serum albumin labeling
luminescent cyclometalated iridium bipyridine aldehyde
IT Albumins, processes
(serum, bovine; synthesis, photophys., electrochem.
properties,
and bovine serum albumin labeling studies of
luminescent cyclometalated iridium bipyridine-aldehyde
complexes)
IT Charge transfer interaction
Conjugation (molecular association)
Emission spectra
Excited state
Luminescence
UV and visible spectra
(synthesis, photophys., electrochem. properties, and bovine
serum albumin labeling studies of luminescent
cyclometalated iridium bipyridine-aldehyde complexes)
IT 756486-01-8P 756486-02-9P
(crystal structure; synthesis, photophys., electrochem.
properties, and bovine serum albumin labeling studies of
luminescent cyclometalated iridium bipyridine-aldehyde
complexes)
IT 756485-90-2P 756485-96-8P
(mol. structure; synthesis, photophys., electrochem.
properties, and bovine serum albumin labeling studies of
luminescent cyclometalated iridium bipyridine-aldehyde
complexes)
IT 756485-92-4P 756485-94-6P 756485-98-0P 756486-00-7P
(synthesis, photophys., electrochem. properties, and bovine
serum albumin labeling studies of luminescent
cyclometalated iridium bipyridine-aldehyde complexes)
IT 57175-14-1 92220-65-0 104704-09-8 631921-37-4
632327-35-6 632327-36-7 632327-37-8
(synthesis, photophys., electrochem. properties, and bovine
serum albumin labeling studies of luminescent
cyclometalated iridium bipyridine-aldehyde complexes)
REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE
IN THE RE FORMAT

L16 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:569715 HCAPLUS
 DOCUMENT NUMBER: 141:131052
 TITLE: Organic electroluminescent device
 with light-emitting layer
 containing a metal complex as a host material
 INVENTOR(S): Igarashi, Tatsuya; Ise, Toshihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 20 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

DATE	PATENT NO.	KIND	DATE	APPLICATION NO.
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	US 2004137267	A1	20040715	US 2003-738307

2003

1218 JP 2004221065 A2 20040805 JP 2003-413061

2003

1211 PRIORITY APPLN. INFO.: JP 2002-382454 A

2002

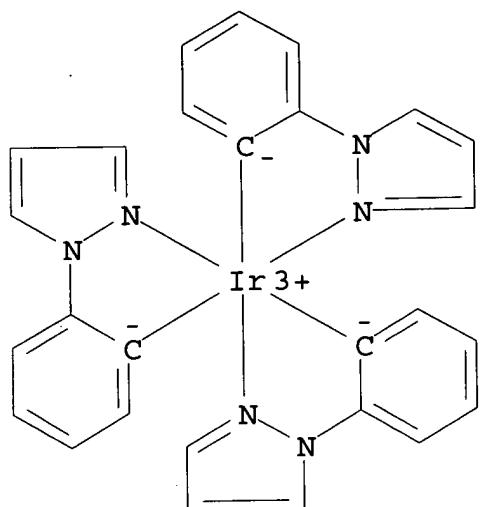
1227

OTHER SOURCE(S): MARPAT 141:131052
 AB Organic electroluminescent devices are described which
 comprise a pair of electrodes; and at least one organic compound
 layer
 including a light-emitting layer between the
 pair of electrodes, where the light-emitting
 layer contains at least one host material and at least one
 luminescent material, and the host material is a metal
 complex containing a metal in groups 4 to 11 or periods 5 to 6
 of the
 Periodic Table.
 IT 359014-72-5

(organic **electroluminescent** device with light-emitting layer containing metal complex as host material)

RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl-κN2)phenyl-κC]- (9CI)
(CA INDEX NAME)



IC ICM B32B009-00
ICS B32B019-00

NCL 428690000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

ST org **electroluminescent** device metal complex host OLED

IT **Electroluminescent** devices

(organic **electroluminescent** device with light-emitting layer containing metal complex as host material)

IT Rare earth complexes

Transition metal complexes

(organic **electroluminescent** device with light-emitting layer containing metal complex as host material)

IT Luminescent substances

Phosphorescent substances

(organic **electroluminescent** device with light-emitting layer containing metal complex as host material and)

IT 7439-89-6D, Iron, compds. 7439-96-5D, Manganese, compds.

7439-98-7D, Molybdenum, compds. 7440-02-0D, Nickel, compds.

7440-04-2D, Osmium, compds. 7440-05-3D, Palladium, compds.

7440-15-5D, Rhenium, compds. 7440-17-7D, Rubidium, compds.

7440-18-8D, Ruthenium, compds. 7440-22-4D, Silver, compds.
 7440-24-6D, Strontium, compds. 7440-30-4D, Thulium, compds.
 7440-31-5D, Tin, compds. 7440-32-6D, Titanium, compds.
 7440-33-7D, Tungsten, compds. 7440-36-0D, Antimony, compds.
 7440-39-3D, Barium, compds. 7440-46-2D, Cesium, compds.
 7440-50-8D, Copper, compds. 7440-54-2D, Gadolinium, compds.
 7440-57-5D, Gold, compds. 7440-67-7D, Zirconium, compds.
 7440-74-6D, Indium, compds.

(organic **electroluminescent** device with **light-emitting** layer containing metal complex as host material)

IT 79183-73-6 82312-83-2 94928-86-6, Tris(2-phenylpyridine),
 iridium 123847-85-8, NPD 134984-37-5 139092-78-7
 303049-17-4 358974-66-0 **359014-72-5** 376367-93-0
 377092-10-9 387859-70-3 435294-03-4 439801-48-6
 690977-83-4 693794-98-8

(organic **electroluminescent** device with **light-emitting** layer containing metal complex as host material)

L16 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:492648 HCAPLUS

DOCUMENT NUMBER: 141:38742

TITLE: One-pot preparation of high-purity
 ortho-metallated iridium complexes

INVENTOR(S): Konno, Hideo; Sasaki, Yoshiyuki

PATENT ASSIGNEE(S): National Institute of Advanced Industrial
 Science and Technology, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			
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JP 2004168755	A2	20040617	JP 2003-365964

2003

1027

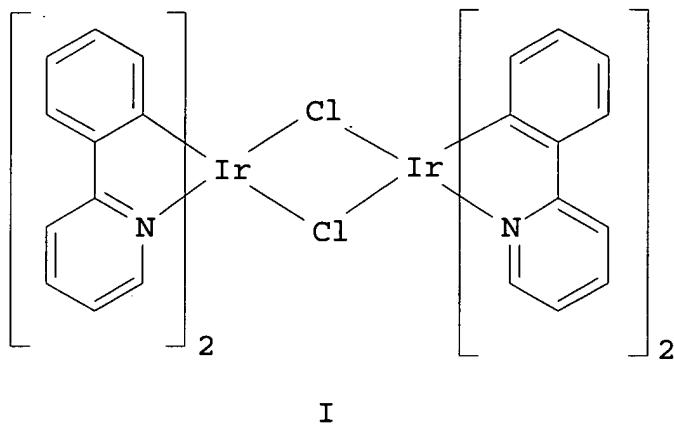
PRIORITY APPLN. INFO.: JP 2002-321913 A

2002

1106

OTHER SOURCE(S) :
GI

CASREACT 141:38742



AB The complexes, useful for organic **electroluminescent** devices, were prepared by treatment of Ir halides with stoichiometrically ≥ 30 equivalent organic ligands. Thus, IrCl_3 was treated with 100 equiv 2-phenylpyridine in ethylene glycol under microwave irradiation with to give 60% tris(2-phenylpyridine)iridium with no Ir dimer I.

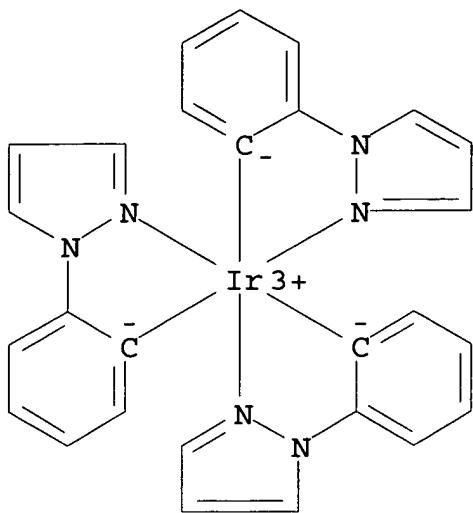
IT **562824-20-8P**

(one-pot preparation of high-purity ortho-metallated Ir complexes by

treatment of Ir halides with stoichiometrically ≥ 30 equivalent organic ligands)

RN 562824-20-8 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-22)- (9CI) (CA INDEX NAME)



IC ICM C07F015-00

ICS H05B033-14; C07M007-00

CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 73

ST metalated iridium complex one pot prepn; iridium chloride phenylpyridine metalation; phenylpyridineiridium prepn iridium chloride phenylpyridine; org **electroluminescent** device metalated iridium complexIT **Electroluminescent** devices

(organic; one-pot preparation of high-purity ortho-metalated

Ir complexes for organic **electroluminescent** devices)IT 94928-86-6P, Tris(2-phenylpyridine)iridium 149005-33-4P
153838-48-3P 337526-98-4P **562824-20-8P**

(one-pot preparation of high-purity ortho-metalated Ir complexes by

treatment of Ir halides with stoichiometrically ≥ 30 equivalent organic ligands)

L16 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:384753 HCAPLUS

DOCUMENT NUMBER: 141:123742

TITLE: Novel **Luminescent** Cyclometalated Iridium(III) Diimine Complexes That Contain a Biotin Moiety

AUTHOR(S): Lo, Kenneth Kam-Wing; Chan, Joe Sai-Wan; Lui, Lok-Hei; Chung, Chi-Keung

CORPORATE SOURCE: Department of Biology and Chemistry, City University of Hong Kong, Hong Kong, Peop.

Rep.

SOURCE: China
 Organometallics (2004), 23(13), 3108-3116
 CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 141:123742

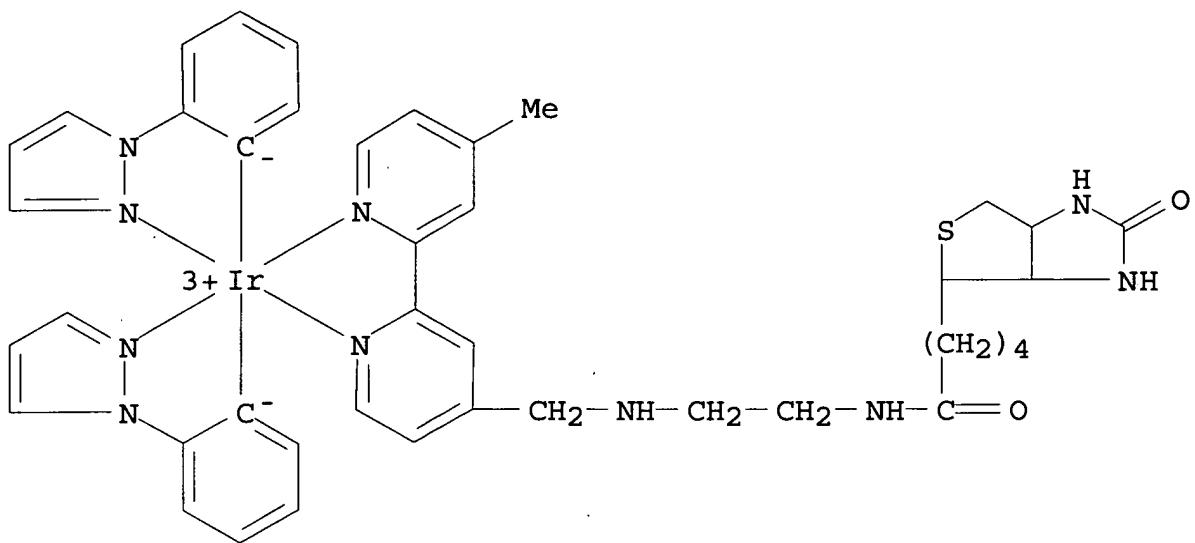
AB The authors report the synthesis and photophys. and electrochem. properties of cyclometalated Ir(III) diimine complexes equipped with a biotin moiety [Ir(N-C)2(bpy-en-biotin)](PF6) (HN-C = 2-phenylpyridine, Hppy (1); 2-(4-methylphenyl)pyridine, Hmppy (2); 1-phenylpyrazole, Hppz (3); 3-methyl-1-phenylpyrazole, Hmppz (4); 7,8-benzoquinoline, Hbzq (5); 2-phenylquinoline, Hpq (6); bpy-en-biotin = 4-((N-((2-biotinamido)ethyl)aminomethyl)-4'-methyl-2,2'-bipyridine). Upon photoexcitation, complexes 1-6 display intense and long-lived emission in fluid solns. at 298 K and in low-temperature glass. The emission is assigned to a triplet metal-to-ligand charge-transfer (3MLCT) ($d\pi(\text{Ir}) \rightarrow \pi^*(\text{bpy-en-biotin})$) excited state. However, the excited state of complex 6 is likely to possess substantial triplet intraligand (3IL) ($\pi \rightarrow \pi^*$) (pq-) character. The authors have studied the binding of these Ir(III) biotin complexes to avidin by 4'-hydroxyazobenzene-2-carboxylic acid (HABA) assays, luminescence titrns., and competitive assays using native biotin. Homogeneous competitive assays for biotin also were designed.

IT 721400-73-3DP, avidin conjugate 721400-75-5DP, avidin conjugate (first dissociation constant; preparation, luminescence, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

RN 721400-73-3 HCPLUS
 CN Iridium(1+), [(3aS,4S,6aR)-hexahydro-N-[2-[[[(4'-methyl[2,2'-bipyridin]-4-yl- κ N1, κ N1')methyl]amino]ethyl]-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanamide]bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, stereoisomer, hexafluorophosphate(1-)
 (9CI) (CA INDEX NAME)

CM 1

CRN 721400-72-2
 CMF C42 H46 Ir N10 O2 S
 CCI CCS

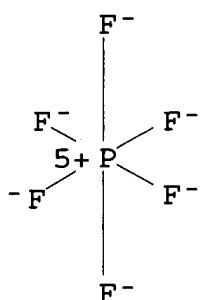


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



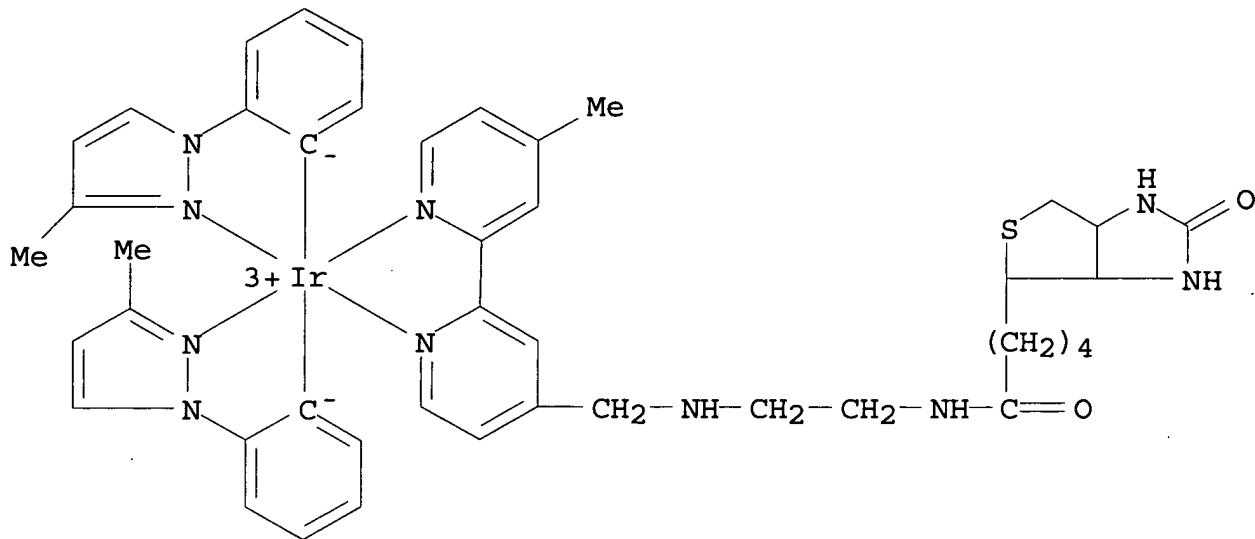
RN 721400-75-5 HCPLUS

CN Iridium(1+), [(3aS,4S,6aR)-hexahydro-N-[2-[[[4'-methyl[2,2'-bipyridin]-4-yl-κN1,κN1')methyl]amino]ethyl]-2-oxo-1H-

thieno[3,4-d]imidazole-4-pentanamide]bis[2-(3-methyl-1H-pyrazol-1-yl-κN2)phenyl-κC]-, stereoisomer, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

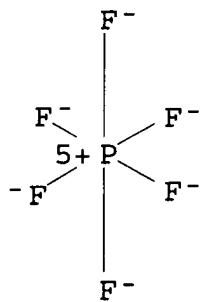
CM 1

CRN 721400-74-4
 CMF C44 H50 Ir N10 O2 S
 CCI CCS



CM 2

CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT 721400-73-3P 721400-75-5P
 (preparation, luminescence, electrochem. and avidin
 binding properties of cyclometalated iridium diimine complexes
 that contain biotin moiety)

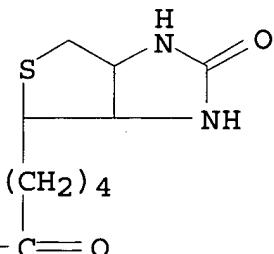
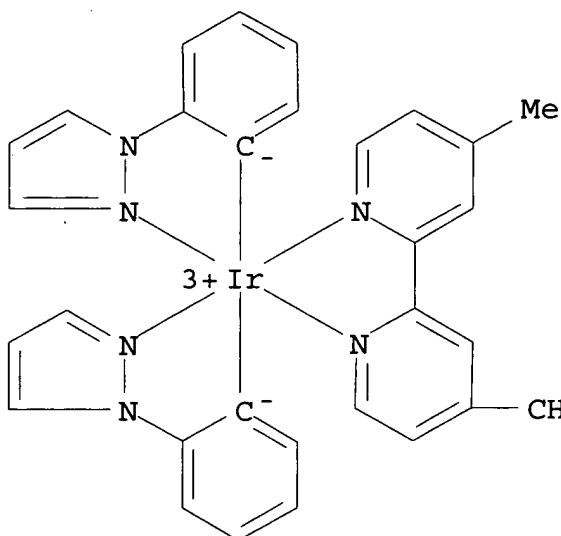
RN 721400-73-3 HCAPLUS

CN Iridium(1+), [(3aS,4S,6aR)-hexahydro-N-[2-[[4'-methyl[2,2'-bipyridin]-4-yl- κ N1, κ N1']methyl]amino]ethyl]-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanamide]bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, stereoisomer, hexafluorophosphate(1-)
(9CI) (CA INDEX NAME)

CM 1

CRN 721400-72-2

CMF C42 H46 Ir N10 O2 S
CCT CCS

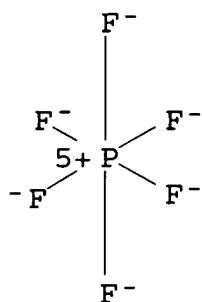


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 721400-75-5 HCAPLUS

CN Iridium(1+), [(3aS,4S,6aR)-hexahydro-N-[2-[[[(4'-methyl[2,2'-bipyridin]-4-yl-κN1,κN1')methyl]amino]ethyl]-2-oxo-1H-

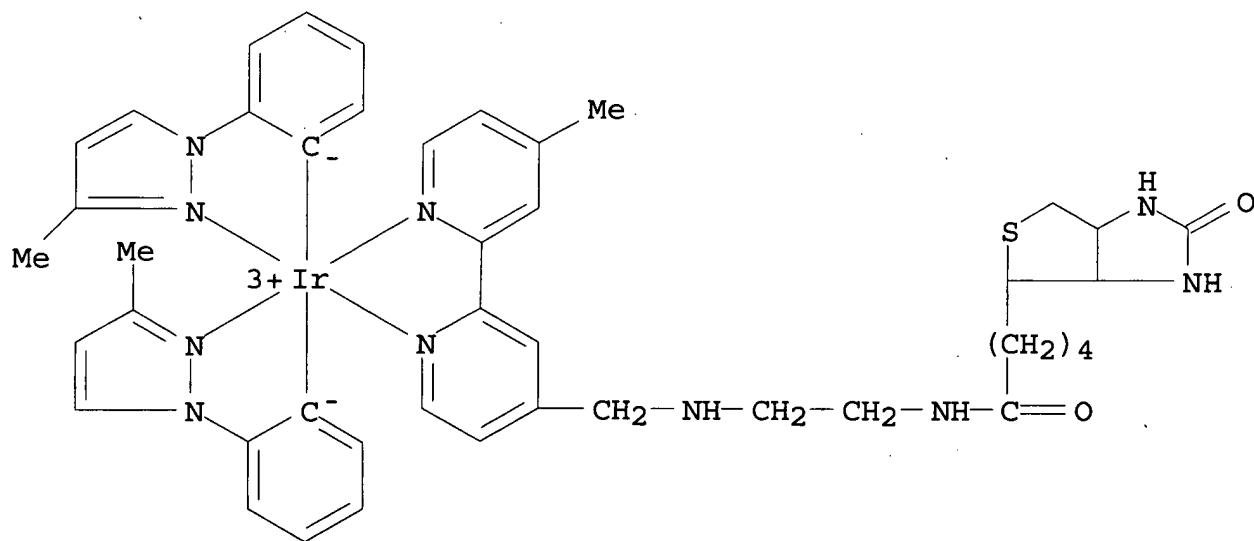
thieno[3,4-d]imidazole-4-pentanamide]bis[2-(3-methyl-1H-pyrazol-1-yl-κN2)phenyl-κC]-, stereoisomer,
hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 721400-74-4

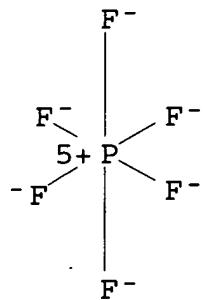
CMF C44 H50 Ir N10 O2 S

CCI CCS

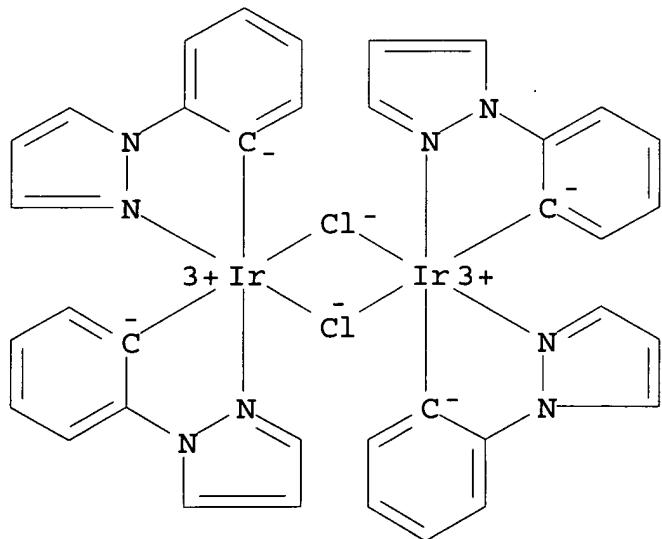


CM 2

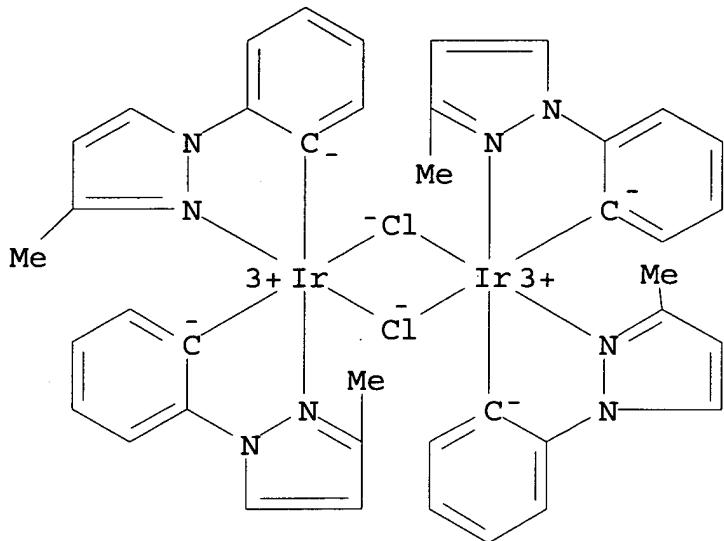
CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT 57175-14-1 631921-37-4
 (preparation, luminescence, electrochem. and avidin
 binding properties of cyclometalated iridium diimine complexes
 that contain biotin moiety)
 RN 57175-14-1 HCAPLUS
 CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,
 stereoisomer (9CI) (CA INDEX NAME)



RN 631921-37-4 HCAPLUS
 CN Iridium, di- μ -chlorotetrakis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 9, 22, 26, 72, 73

ST iridium cyclometalated biotinamidoethylaminomethylbipyridine complex prepn **luminescence** electrochem avidin binding; biotin homogeneous assay **luminescence** avidin competitive binding iridium complex

IT Emission spectra
 (UV-visible; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT Avidins
 (binding consts. and use in homogeneous assay for biotin; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT Avidins
 (conjugates, first dissociation consts.; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT Redox reaction
 (electrochem.; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT UV and visible spectra
 (emission; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine

complexes that contain biotin moiety)

IT Electric potential
(ground and excited state; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT Biotinylation
Charge transfer transition
Luminescence
Oxidation, electrochemical
Reduction, electrochemical
(preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT 721400-69-7DP, avidin conjugate 721400-71-1DP, avidin conjugate
721400-73-3DP, avidin conjugate **721400-75-5DP**,
avidin conjugate 721400-77-7DP, avidin conjugate
721400-79-9DP, avidin conjugate
(first dissociation constant; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT 106294-60-4, (2,2'-Bipyridine)bis[2-(pyridin-2-yl)phenyl]iridium(1+) hexafluorophosphate
(model; preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT 58-85-5, Biotin
(preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT 721400-69-7P 721400-71-1P **721400-73-3P**
721400-75-5P 721400-77-7P 721400-79-9P
(preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

IT **57175-14-1** 92220-65-0 104704-09-8,
4-Formyl-4'-methyl-2,2'-bipyridine 111790-37-5 116563-45-2
631921-37-4 632327-36-7 632327-37-8
(preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

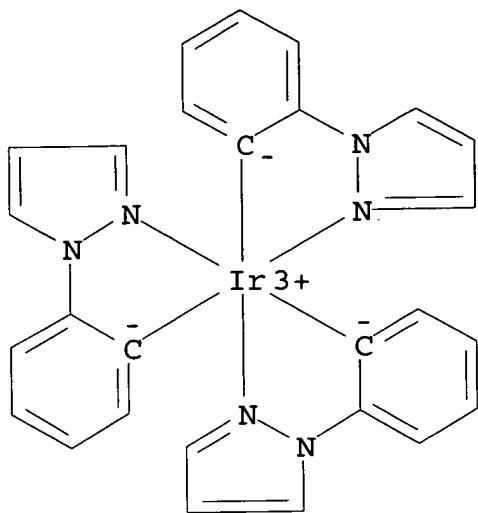
IT 721400-80-2P
(preparation, **luminescence**, electrochem. and avidin binding properties of cyclometalated iridium diimine complexes that contain biotin moiety)

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L16 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:345783 HCAPLUS
DOCUMENT NUMBER: 141:79244
TITLE: A synthesis and luminescence study
of Ir(ppz)₃ for organic light-
emitting devices
AUTHOR(S): Nam, Eun Jeong; Kim, Jun Ho; Kim, Bong-Ok;
Kim, Sung Min; Park, No Gill; Kim, Young Sik;
Kim, Young Kwan; Ha, Yunkyoung
CORPORATE SOURCE: Department of Science, College of
Engineering,
Technology,
Hongik University, Seoul, S. Korea
SOURCE: Bulletin of the Chemical Society of Japan
(2004), 77(4), 751-755
CODEN: BCSJA8; ISSN: 0009-2673
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Tris(1-phenyl- κ C1-pyrazolato- κ N2)iridium (Ir(ppz)₃)
was prepared and its luminescence properties were
investigated for the application to organic light-
emitting devices (OLEDs). The
photoluminescence (PL) spectra of Ir(ppz)₃ in
dichloromethane showed a peak at 437 nm at room temperature. The
luminescent lifetime of an Ir(ppz)₃ film doped in CBP was
found to be 218 ns, which indicated that its emission is
phosphorescent. OLEDs were fabricated with
doped films of Ir(ppz)₃ in several hosts, and the
electroluminescence (EL) peak was observed at 450 nm. The
luminance of OLEDs was pure blue, with the CIE
coordinates of x = 0.158, y_r = 0.139 at 100 cd/m², but
luminous efficiencies were low since the LUMO of Ir(ppz)₃
is higher than those of the hosts used.
IT 359014-72-5P
(synthesis and photophysics tris(phenylpyrazolato)iridium and
its application to organic light-emitting
devices)
RN 359014-72-5 HCAPLUS
CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI)
(CA INDEX NAME)



CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 73

ST iridium phenylpyrazolato complex synthesis photophys OLED device; org light emitting device iridium phenylpyrazolato complex

IT **Electroluminescent** devices
 (displays, OLED; organic light-emitting device containing tris(phenylpyrazolato)iridium in emissive layer)

IT **Luminescent** screens
 (electroluminescent, OLED; organic light-emitting device containing tris(phenylpyrazolato)iridium in emissive layer)

IT **Electroluminescent** devices
 Photoinduced energy transfer
 (organic light-emitting device containing tris(phenylpyrazolato)iridium in emissive layer)

IT Band gap
 Electronic excitation
 HOMO (molecular orbital)
 LUMO (molecular orbital)
Luminescence
Luminescence, electroluminescence
 Oscillator strength
Phosphorescence
 Singlet state excitation
 (synthesis and photophysics tris(phenylpyrazolato)iridium and its application to organic light-emitting devices)

IT 58328-31-7 148044-07-9 550378-78-4
 (emission layer host; organic **light-emitting**
 device containing tris(phenylpyrazolato)iridium in emissive
 layer)
 IT 2085-33-8, Alq3 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-
 phenanthroline
 (exciton blocking layer; organic **light-emitting**
 device containing tris(phenylpyrazolato)iridium in emissive
 layer)
 IT 123847-85-8,
 N,N'-Bis(1-naphthyl)-N,N'-diphenyl-1,1'-biphenyl-4,4'-
 diamine
 (hole transport layer; organic **light-emitting**
 device containing tris(phenylpyrazolato)iridium in emissive
 layer)
 IT 50926-11-9, ITO
 (organic **light-emitting** device containing
 tris(phenylpyrazolato)iridium in emissive layer)
 IT 359014-72-5P
 (synthesis and photophysics tris(phenylpyrazolato)iridium and
 its application to organic **light-emitting**
 devices)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS

AVAILABLE
 IN THE RE FORMAT

L16 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:203410 HCAPLUS
 DOCUMENT NUMBER: 140:261170
 TITLE: Organic **light emitting**
 devices with electron blocking layers
 INVENTOR(S): Thompson, Mark E.; Adamovich, Vadim; Ren,
 Xiaofan; Tamayo, Arnold; Djurovich, Peter I.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 30 pp., Cont.-in-part
 of U.S. Ser. No. 328,914.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----
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US 2004048101 A1 20040311 US 2003-402684

2003

0328 US 2003124381 A1 20030703 US 2002-112257

2002

0329 US 6869695 B2 20050322
US 2003175553 A1 20030918 US 2002-328914

2002

1224 US 6863997 B2 20050308 US 2002-112257 A2
PRIORITY APPLN. INFO.:

2002

0329 US 2002-368496P P

2002

0329 US 2002-328914 A2

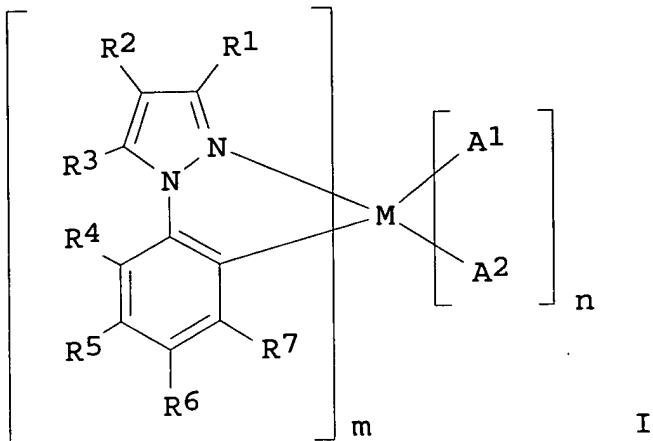
2002

1224 US 2001-344133P P

2001

1228

OTHER SOURCE(S) : MARPAT 140:261170
GI



I

AB An electron blocking layer for LED is described comprising a compound of the formula I wherein M is a metal; each A1 and A2 is,

independently, a monodentate ligand; or A1 and A2 are covalently joined together to form a bidentate ligand; each of R1-R7 is, independently, H, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF₃, CnF_{2n+1}, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group, and addnl., or alternatively, any one or more of (R₁,R₂) or (R₂,R₃) or (R₃,R₄) or (R₄,R₅) or (R₅,R₆) or (R₆,R₇) together form, independently, a fused 5- to 6-member cyclic group,

wherein the cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or

heteroaryl, and wherein the fused 5- to 6-member cyclic group may be optionally substituted with one or more of alkyl, alkenyl, alkynyl, alkylaryl, CN, CF₃, CnF_{2n+1}, trifluorovinyl, CO₂R, C(O)R, NR₂, NO₂, OR, halo; each R is independently H, alkyl, alkenyl, alkynyl, alkylaryl, and aryl; m =

1, 2, or 3; and n = 0, 1, or 2, wherein m + n = 3. The compound for

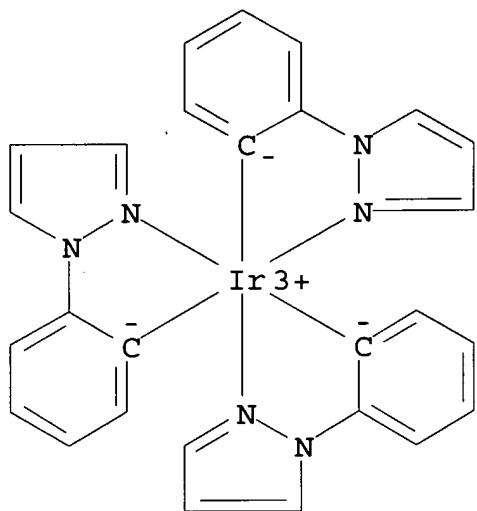
electron blocking layer may show increased stability when incorporated into an organic light emitting device. An LED using the electron blocking layer is also described.

IT 359014-72-5 669067-96-3

(electron blocking layer; organic light emitting devices with electron blocking layers)

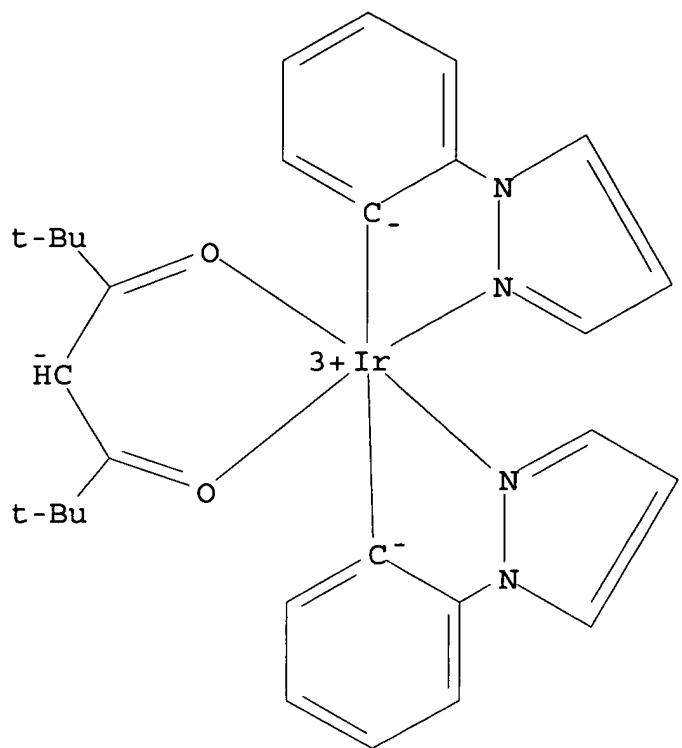
RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI)
(CA INDEX NAME)



RN 669067-96-3 HCPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] (2,2,6,6-tetramethyl-3,5-heptanedionato- κ O, κ O') - (9CI) (CA INDEX NAME)

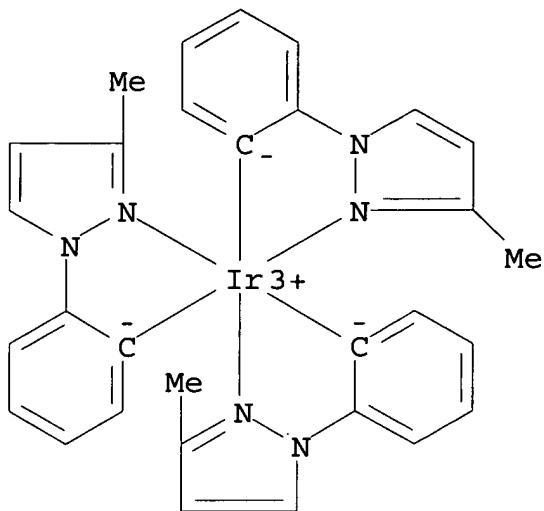


IT 669067-97-4

(electron blocking layer; reorg. light
emitting devices with electron blocking layers)

RN 669067-97-4 HCAPLUS

CN Iridium, tris[2-(3-methyl-1H-pyrazol-1-yl-κN2)phenyl-
κC]- (9CI) (CA INDEX NAME)



IC ICM H05B033-12
 NCL 428690000; 428917000; 313504000; 313506000; 548103000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 49, 76, 78
 ST LED electron blocking layer; **light emitting** material electron blocking layer
 IT **Electroluminescent** devices
 (organic **light emitting** devices with electron blocking layers)
 IT 50926-11-9, Indium tin oxide
 (electrode; organic **light emitting** devices with electron blocking layers)
 IT 359014-72-5 669067-96-3
 (electron blocking layer; organic **light emitting** devices with electron blocking layers)
 IT 669067-97-4
 (electron blocking layer; reorg. **light emitting** devices with electron blocking layers)
 IT 123847-85-8, NPD
 (**light emitting** layer; organic **light emitting** devices with electron blocking layers)
 IT 550378-78-4
 (mCP; organic **light emitting** devices with electron blocking layers)
 IT 2085-33-8, Alq3 4733-39-5 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride (LiF), uses 58328-31-7, CBP 400654-08-2 488759-65-5
 (organic **light emitting** devices with electron

blocking layers)

L16 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:989871 HCAPLUS
 DOCUMENT NUMBER: 140:50040
 TITLE: Very low voltage, high efficiency
 phosphorescent OLED in a p-i-n
 structure
 INVENTOR(S): Forrest, Stephen R.; Pfeiffer, Martin
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 9 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

DATE	PATENT NO.	KIND	DATE	APPLICATION NO.
2002	US 2003230980	A1	20031218	US 2002-173682
0618	WO 2003107452	A1	20031224	WO 2003-US19593
2003				
0618				
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRIORITY APPLN. INFO.:			US 2002-173682	A

2002

0618

AB Organic light-emitting devices are described which comprise an anode disposed over a substrate; a p-doped organic

layer disposed over and elec. connected to the anode; a phosphorescent organic emissive layer disposed over and elec. connected to the p-doped organic layer; an n-doped organic layer disposed over and elec. connected to the phosphorescent organic emissive layer; and a cathode disposed over and elec. connected to the n-doped organic layer, where a blocking layer is disposed between and elec. connected to the p-doped and/or the n-doped organic layer and the emissive layer, the blocking layer adapted to block electrons/holes and excitons from entering the doped organic layer. In addition to the device having a cathode

on the

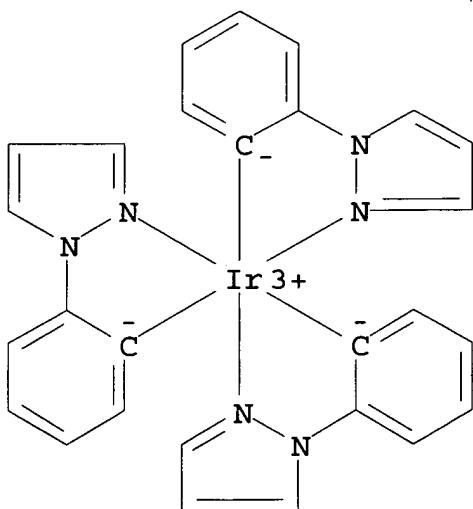
top, an "inverted" device having a cathode on the bottom is also discussed.

IT 359014-72-5

(blocking layer; very low voltage, high efficiency phosphorescent OLED in p-i-n structure containing)

RN 359014-72-5 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI)
(CA INDEX NAME)



IC ICM H01L035-24

NCL 313600000; 257040000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

ST voltage efficiency **phosphorescent**
electroluminescent device PIN OLED

IT Semiconductor materials
(intrinsic, emissive layer; very low voltage, high efficiency
phosphorescent OLED in p-i-n structure containing)

IT **Electroluminescent** devices
(**phosphorescent**; very low voltage, high efficiency
phosphorescent OLED in p-i-n structure)

IT P-I-N diodes
(very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure)

IT **Fluorescent** substances
Phosphorescent substances
(very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure containing)

IT 4733-39-5, BCP
(BCP; very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure containing)

IT 29261-33-4, F4-TCNQ
(F4-TCNQ, dopant; very low voltage, high efficiency
phosphorescent OLED in p-i-n structure containing)

IT 123847-85-8, NPD
(NPD; very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure containing)

IT 1662-01-7, Bathophenanthroline **359014-72-5**
(blocking layer; very low voltage, high efficiency
phosphorescent OLED in p-i-n structure containing)

IT 7439-93-2, Lithium, properties 94928-86-6, Tris(2-
phenylpyridine)iridium
(dopant; very low voltage, high efficiency
phosphorescent OLED in p-i-n structure containing)

IT 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride LiF, uses
50926-11-9, Indium tin oxide
(very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure containing)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Aluminum
tris(8-hydroxyquinolinato) 58328-31-7, CBP 124729-98-2
150405-69-9, TAZ
(very low voltage, high efficiency **phosphorescent**
OLED in p-i-n structure containing)

L16 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:861940 HCAPLUS

DOCUMENT NUMBER: 141:164405

TITLE: New charge-carrier blocking materials for
high efficiency OLEDs

AUTHOR(S) : Adamovich, Vadim I.; Cordero, Steven R.;
Djurovich, Peter I.; Tamayo, Arnold;
Thompson, Mark E.; D'Andrade, Brian W.; Forrest,
Stephen R.
CORPORATE SOURCE: Department of Chemistry, University of
Southern California, Los Angeles, CA, 90089,
USA
SOURCE: Organic Electronics (2003), 4(2-3), 77-87
CODEN: OERLAU; ISSN: 1566-1199
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Three strategies for preparing high efficiency OLEDs are demonstrated, which involve the use of hole and electron blocking layers. The 1st of these strategies involves the use of a cyclometalated Ir compound (bis(2-(4,6-difluorophenyl)pyridyl-N,C₂')iridium(III) picolinate, FIrpic) as a hole-blocking material

for green and blue emissive OLEDs. Devices which used FIrpic as a combined hole blocking and electron transporting layer

gave external quantum efficiencies > 14% (device structure: anode/HTL/EL/FIrpic/cathode, HTL = hole transport layer, EL = emissive layer). When the FIrpic layer of this device was replaced with bathocuproine (BCP), the device efficiency dropped to 12%. A host-guest approach to the formation of a hole

blocking

layer (HBL) also was demonstrated. FIrpic was doped into two different wide energy band-gap organic matrix materials (i.e. octaphenyl-cyclooctatetraene, OPCOT, and 1,3,5-tris-phenyl-2-(4-biphenyl)benzene, SC5) forming a mixed HBL. Devices with doped OPCOT gave quantum efficiencies comparable to those with a BCP HBL, while the SC5 based devices gave higher efficiency than

their

BCP blocked counterparts. When blue electrophosphorescent devices

were prepared in a conventional OLED structure (i.e. anode/HTL/EL/HBL/ETL/cathode), excessive HTL emission is often observed, resulting from electron leakage from the doped CBP layer

into the HTL. This electron leakage can be eliminated by inserting an electron blocking layer (EBL) between the HTL and luminescent layers. Both fac-tris(1-phenylpyrazolato,N,C₂')iridium(III) (Irppz) and Ir(III) bis(1-phenylpyrazolato,N,C₂')(2,2,6,6-tetramethyl-3,5-

heptanedionato- κ O,O) were used as efficient EBLs. The insertion of an EBL leads to both improved color purity and quantum efficiency,

relative to devices without EBLs. For example, a white emitting device with the structure

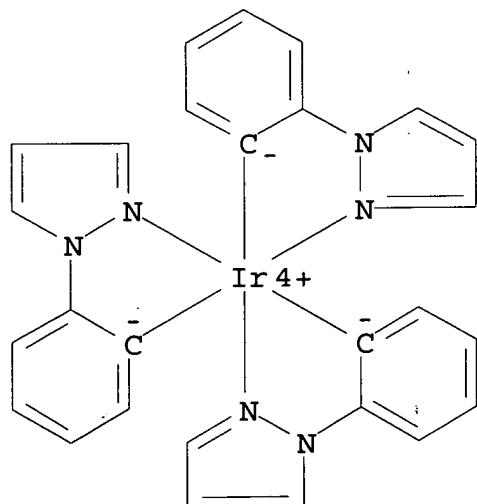
ITO/HTL/EL/HBL/ETL/LiF/Al gave an external efficiency of 1.9% and nearly exclusively HTL emission. Addition of a 100 Å Irppz layer between the HTL and EL gave a device with an external quantum efficiency of 3.3% and electroluminescence from only the EL.

IT 562824-31-1 669067-96-3

(new charge-carrier blocking materials for high efficiency OLEDs)

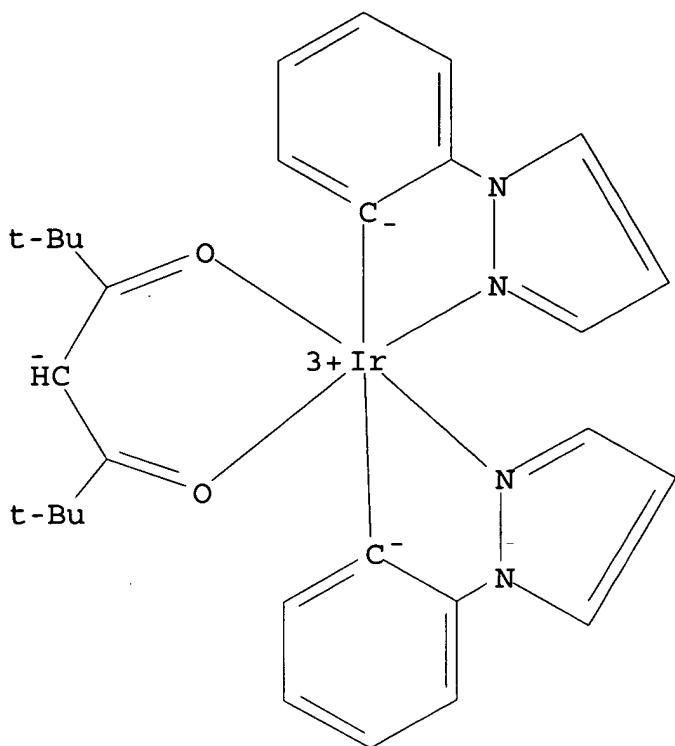
RN 562824-31-1 HCAPLUS

CN Iridium(1+), tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-21)- (9CI) (CA INDEX NAME)



RN 669067-96-3 HCAPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] (2,2,6,6-tetramethyl-3,5-heptanedionato- κ O, κ O')- (9CI) (CA INDEX NAME)



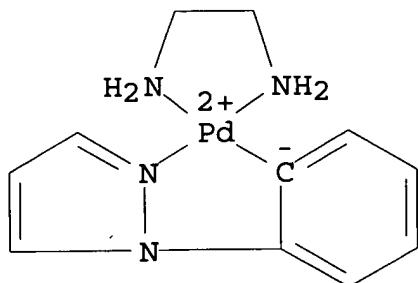
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22
ST charge carrier blocking iridium complex OLED **light emitting diode**
IT Band structure
Glass substrates
Leakage current
 Luminescence
 Luminescence, electroluminescence
 (new charge-carrier blocking materials for high efficiency OLEDs)
IT **Electroluminescent devices**
 (organic; new charge-carrier blocking materials for high efficiency OLEDs)
IT 2041-08-9, Octaphenyl-cyclooctatetraene 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 4733-39-5, Bathocuproine
97388-42-6
 123847-85-8, NPD 376367-93-0 400654-08-2 475589-03-8
 562824-31-1 669067-96-3
 (new charge-carrier blocking materials for high efficiency OLEDs)

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS
 AVAILABLE
 IN THE RE FORMAT

L16 ANSWER 13 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:843371 HCPLUS
 DOCUMENT NUMBER: 141:71680
 TITLE: Effect of the Nature of Heterocyclic Ligands
 on Spectral and **Luminescent**
 Properties of Pt(II) and Pd(II) Complexes
 Puzyk, M. V.; Ivanov, M. A.; Balashev, K. P.
 Herzen State Pedagogical University, St.
 Petersburg, 191186, Russia
 SOURCE: Optics and Spectroscopy (Translation of
 Optika
 i Spektroskopiya) (2003), 95(4), 581-584
 CODEN: OPSUA3; ISSN: 0030-400X
 PUBLISHER: MAIK Nauka/Interperiodica Publishing
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The spectral and **luminescent** properties of Pt(II) and
 Pd(II) complexes with heterocyclic imine ligands
 (1-phenylpyrazolate, 2-phenylpyridinate, and 2,2'-bipyridyl) were
 studied. The field strength of these ligands satisfies the
 following relation: Ppy- > Bipy ≈ Ppz-. The preps. of
 [Pd(en)(Ppz)]ClO₄ and [Pd(en)(Bpy)](ClO₄)₂ are described.
 IT 709654-53-5P
 (effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
 divalent complexes and preparation of palladium
 ethylenediamine
 phenylpyrazolato and bipyridyl complexes)
 RN 709654-53-5 HCPLUS
 CN Palladium(1+), (1,2-ethanediamine- κ N, κ N') [2-(1H-
 pyrazol-1-yl- κ N2)phenyl- κ C]-, (SP-4-2)-, perchlorate
 (9CI) (CA INDEX NAME)

CM 1

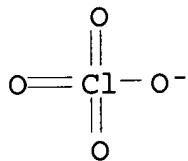
CRN 709654-52-4
 CMF C11 H15 N4 Pd
 CCI CCS



CM 2

CRN 14797-73-0

CMF Cl O4



CC 29-13 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 22, 73

ST palladium platinum phenylpyrazolate phenylpyridinate bipyridyl complex **luminescence** UV spectra; ethylenediamine palladium phenylpyrazolato bipyridyl complex prepn UV spectra **luminescence**

IT Excited electronic state

Luminescence

UV and visible spectra

(effect of heterocyclic ligands on spectral and **luminescent** properties of platinum and palladium divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

IT Ligand field theory

(spectrochem. series; effect of heterocyclic ligands on spectral and **luminescent** properties of platinum and palladium divalent complexes and preparation of palladium ethylenediamine phenylpyrazolato and bipyridyl complexes)

IT 22427-61-8, Bis(2,2'-bipyridine)platinum(2+) 24972-61-0, (2,2'-Bipyridine) (ethylenediamine)platinum(2+) 117939-95-4,

(Ethylenediamine) [2- (pyridin-2-yl)phenyl]palladium(1+)
164533-54-4,
(Ethylenediamine) [2- (pyridin-2-yl)phenyl]platinum(1+)

perchlorate

(effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

IT 187456-51-5P, (2,2'-Bipyridine) (ethylenediamine)palladium(2+)
diperchlorate 709654-53-5P

(effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

IT 107-15-3, Ethylenediamine, reactions 31405-81-9,
Bis(tetrabutylammonium) tetrachloropalladate
(effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

IT 1008-89-5, 2-Phenylpyridine 1126-00-7, 1-Phenylpyrazole
(reference; effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

IT 366-18-7, 2,2'-Bipyridine
(reference; effect of heterocyclic ligands on spectral and
luminescent properties of platinum and palladium
divalent complexes and preparation of palladium

ethylenediamine

phenylpyrazolato and bipyridyl complexes)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L16 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:814404 HCAPLUS

DOCUMENT NUMBER: 140:27914

TITLE: New **Luminescent** Cyclometalated
Iridium(III) Diimine Complexes as Biological
Labeling Reagents

AUTHOR(S): Lo, Kenneth Kam-Wing; Chung, Chi-Keung; Lee,

CORPORATE SOURCE: Terence Kwok-Ming; Lui, Lok-Hei; Tsang, Keith Hing-Kit; Zhu, Nianyong
 Department of Biology and Chemistry, City University of Hong Kong, Kowloon, Hong Kong, Peop. Rep. China

SOURCE: Inorganic Chemistry (2003), 42(21), 6886-6897
 CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 140:27914

AB The synthesis, characterization, and photophys. and electrochem. properties of thirty **luminescent** cyclometalated iridium(III) diimine complexes $[\text{Ir}(\text{N-C})_2(\text{N-N})](\text{PF}_6)$ ($\text{HN-C} = 2\text{-phenylpyridine, Hppy; 2-(4-methylphenyl)pyridine, Hmppy; 3-methyl-1-phenylpyrazole, Hmppz; 7,8-benzoquinoline, Hbzq; 2-phenylquinoline, Hpq; N-N = 4\text{-amino-2,2'-bipyridine, bpy-NH}_2; 4\text{-isothiocyanato-2,2'-bipyridine, bpy-ITC; 4-iodoacetamido-2,2'-bipyridine, bpy-IAA; 5\text{-amino-1,10-phenanthroline, phen-NH}_2; 5\text{-isothiocyanato-1,10-phenanthroline, phen-ITC; 5-iodoacetamido-1,10-phenanthroline, phen-IAA})$ were reported.

The x-ray crystal structure of $[\text{Ir}(\text{mppz})_2(\text{bpy-NH}_2)](\text{PF}_6)$ has also been

investigated. Upon irradiation, all the complexes display intense and

long-lived **luminescence** under ambient conditions and in 77-K glass. On the basis of the photophys. and electrochem. data,

the emission of most of these complexes is assigned to an excited state of predominantly triplet metal-to-ligand charge-transfer (3MLCT) ($\text{d}\pi(\text{Ir}) \rightarrow \pi^*(\text{N-N})$) character. In some cases, triplet intraligand (3IL) ($\pi \rightarrow \pi^*$) (N-N or N-C-) excited states have also been identified. In view of the specific

reactivity of the isothiocyanate and iodoacetamide moieties toward

the primary amine and sulphydryl groups, resp., several complexes were labeled various biol. mols. with a selection of **luminescent** iridium(III) complexes. The photophys. properties of the **luminescent** conjugates have been investigated. In addition, a heterogeneous assay for digoxin has also been designed on the basis of the recognition of biotinylated

anti-digoxin by avidin labeled with one of the **luminescent** iridium(III) complexes.

IT 631921-38-5P

(crystal structure; preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

RN 631921-38-5 HCAPLUS

CN Iridium(1+), ([2,2'-bipyridin]-4-amine- κ N1, κ N1')bis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-13)-, hexafluorophosphate(1-), compd. with dichloromethane (1:1), monohydrate (9CI) (CA INDEX NAME)

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CRN 75-09-2

CMF C H2 Cl2

Cl-CH₂-Cl

CM 2

CRN 631920-92-8

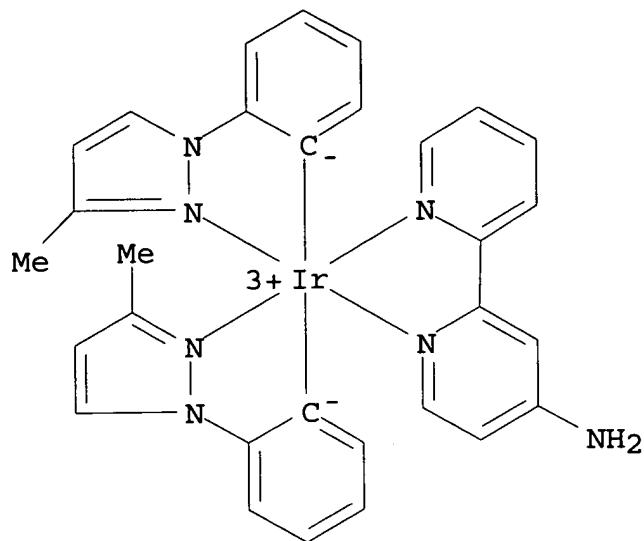
CMF C30 H27 Ir N7 . F6 P

CM 3

CRN 631920-91-7

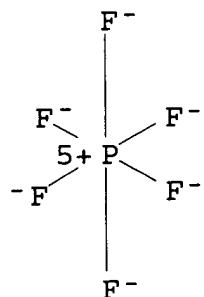
CMF C30 H27 Ir N7

CCI CCS



CM 4

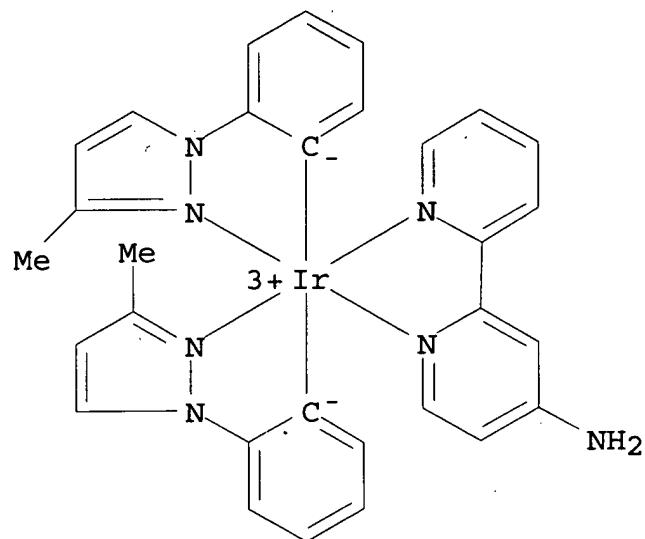
CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT 631920-92-8P
 (mol. structure; preparation, electrochem. properties, and
 characterization of new **luminescent** cyclometalated
 iridium diimine complexes as biol. labeling reagents)
 RN 631920-92-8 HCPLUS
 CN Iridium(1+), ([2,2'-bipyridin]-4-amine- κ N1, κ N1')bis[2-
 (3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-13)-,
 hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

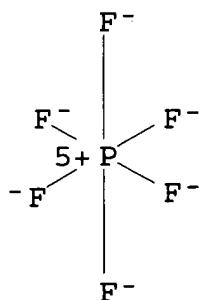
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CRN 631920-91-7
 CMF C30 H27 Ir N7
 CCI CCS



CM 2

CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT 631921-16-9P 631921-20-5P
 (preparation, electrochem. properties, and characterization
 of new

luminescent cyclometalated iridium diimine complexes as
biol. labeling reagents)

RN 631921-16-9 HCAPLUS

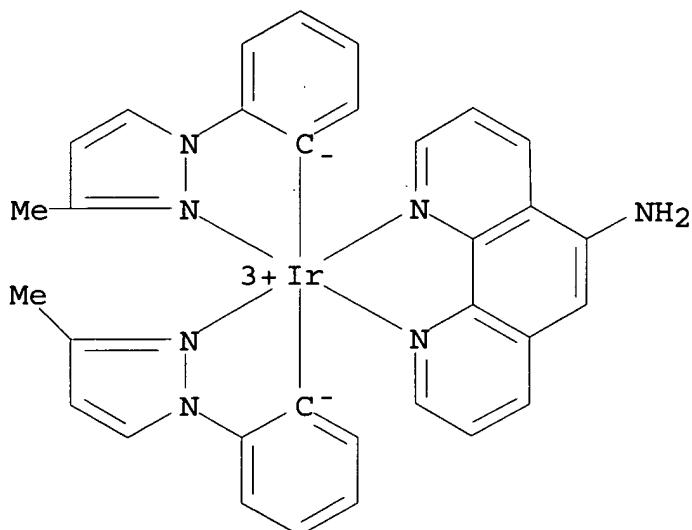
CN Iridium(1+), bis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C](1,10-phenanthrolin-5-amine- κ N1, κ N10)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 631921-15-8

CMF C32 H27 Ir N7

CCI CCS

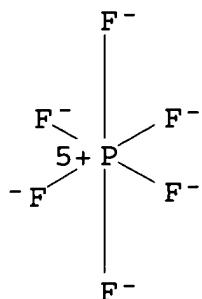


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 631921-20-5 HCAPLUS

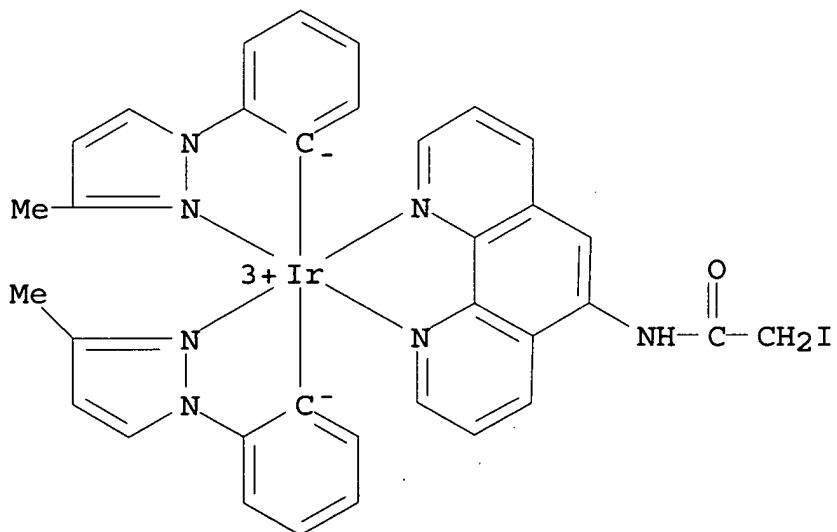
CN Iridium(1+), [2-iodo-N-(1,10-phenanthrolin-5-yl-
 κ N1, κ N10)acetamide]bis[2-(3-methyl-1H-pyrazol-1-yl-
 κ N2)phenyl- κ C]-, hexafluorophosphate(1-) (9CI) (CA
 INDEX NAME)

CM 1

CRN 631921-19-2

CMF C34 H28 I Ir N7 O

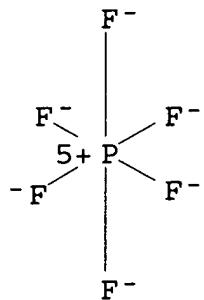
CCI CCS



CM 2

CRN 16919-18-9

CMF F6 P
CCI CCS

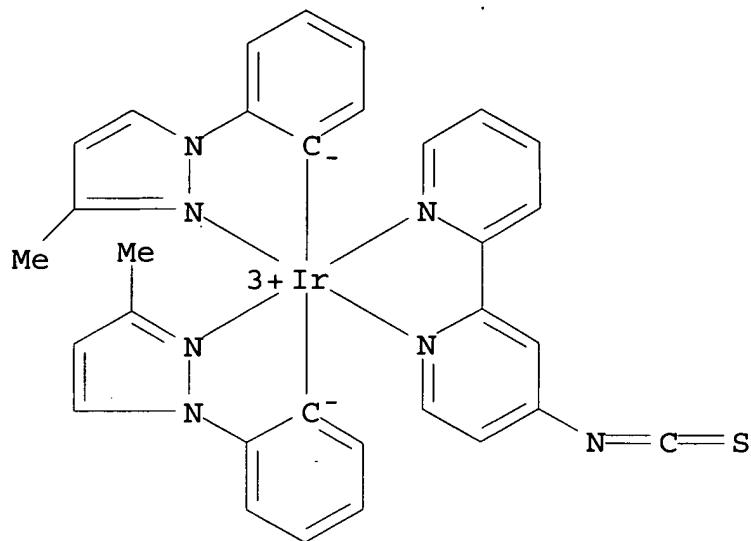


IT 631920-94-0P 631920-96-2P 631921-18-1P
(preparation, electrochem. properties, and characterization
of new
luminescent cyclometalated iridium diimine complexes as
biol. labeling reagents)

RN 631920-94-0 HCPLUS
CN Iridium(1+), (4-isothiocyanato-2,2'-bipyridine-
κN1,κN1')bis[2-(3-methyl-1H-pyrazol-1-yl-
κN2)phenyl-κC]-, hexafluorophosphate(1-) (9CI) (CA
INDEX NAME)

CM 1

CRN 631920-93-9
CMF C31 H25 Ir N7 S
CCI CCS

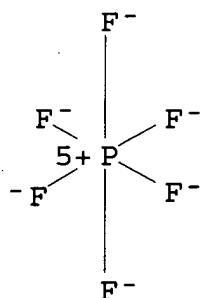


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 631920-96-2 HCPLUS

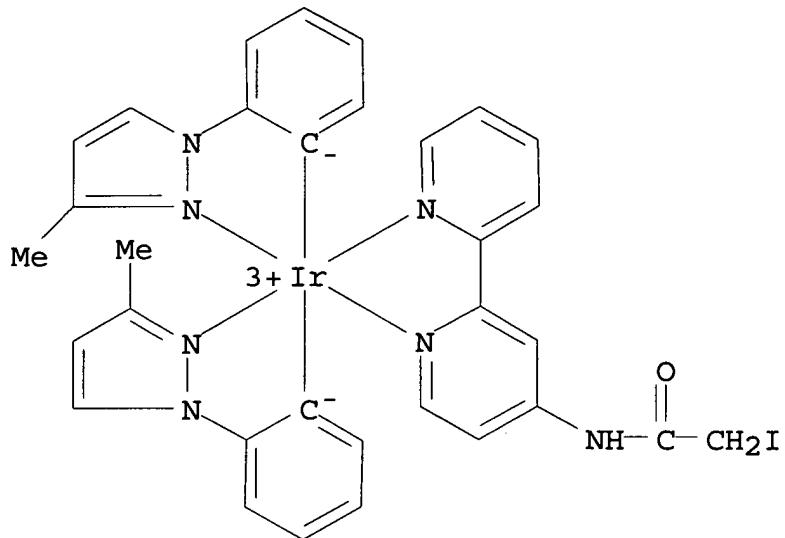
CN Iridium(1+), [N-([2,2'-bipyridin]-4-yl- $\kappa\text{N}1,\kappa\text{N}1'$)-2-iodoacetamide]bis[2-(3-methyl-1H-pyrazol-1-yl- $\kappa\text{N}2$)phenyl- κC]-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 631920-95-1

CMF C32 H28 I Ir N7 O

CCI CCS

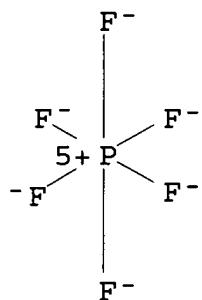


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

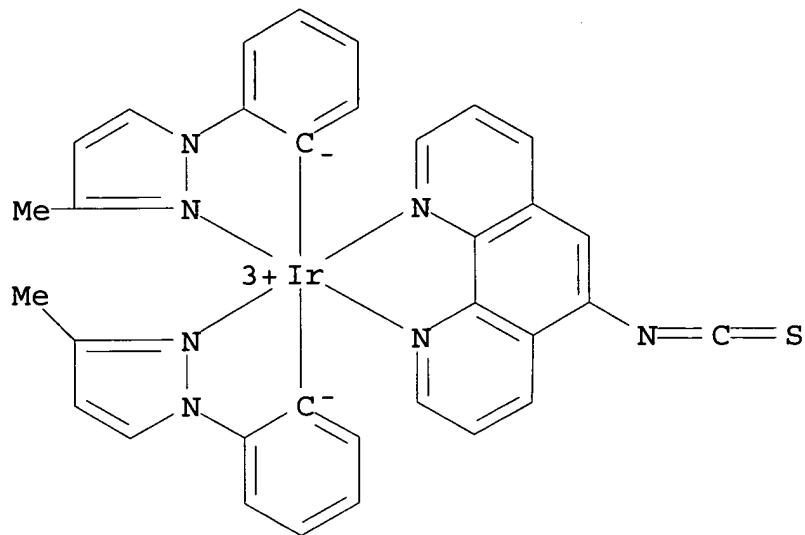


RN 631921-18-1 HCAPLUS

CN Iridium(1+), (5-isothiocyanato-1,10-phenanthroline-
 κ N1, κ N10)bis[2-(3-methyl-1H-pyrazol-1-yl-
 κ N2)phenyl- κ C]-, hexafluorophosphate(1-) (9CI) (CA
 INDEX NAME)

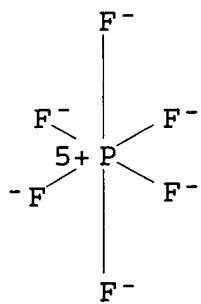
CM 1

CRN 631921-17-0
 CMF C33 H25 Ir N7 S
 CCI CCS



CM 2

CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT 631921-34-1P 631921-36-3P
 (preparation, electrochem. properties, and characterization
 of new
 luminescent cyclometalated iridium diimine complexes as

biol. labeling reagents)

RN 631921-34-1 HCAPLUS

CN Iridate(4-), [L- γ -glutamyl-S-[2-oxo-2-[(1,10-phenanthrolin-5-yl- κ N1, κ N10)amino]ethyl]-L-cysteinylglycinato(2-)]bis[2-(3-methyl-1H-pyrazol-1-yl)phenyl- κ C]-, hydrogen hexafluorophosphate(1-) (1:2:1) (9CI) (CA INDEX NAME)

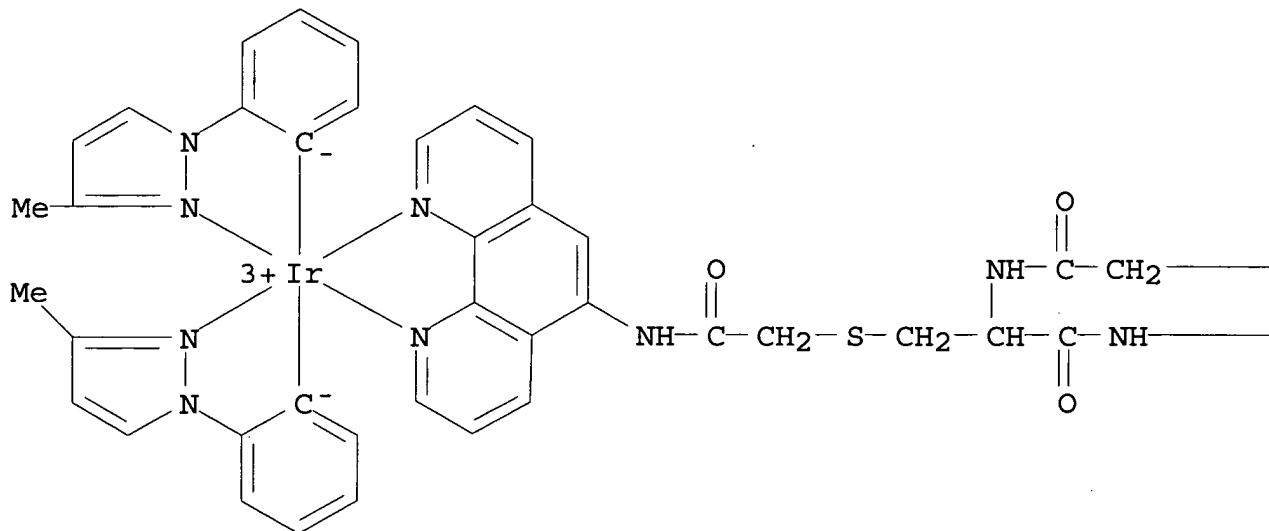
CM 1

CRN 631921-33-0

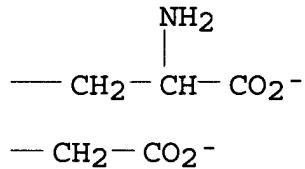
CMF C44 H42 Ir N10 O7 S

CCI CCS

PAGE 1-A



PAGE 1-B

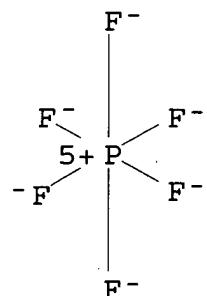


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 631921-36-3 HCPLUS

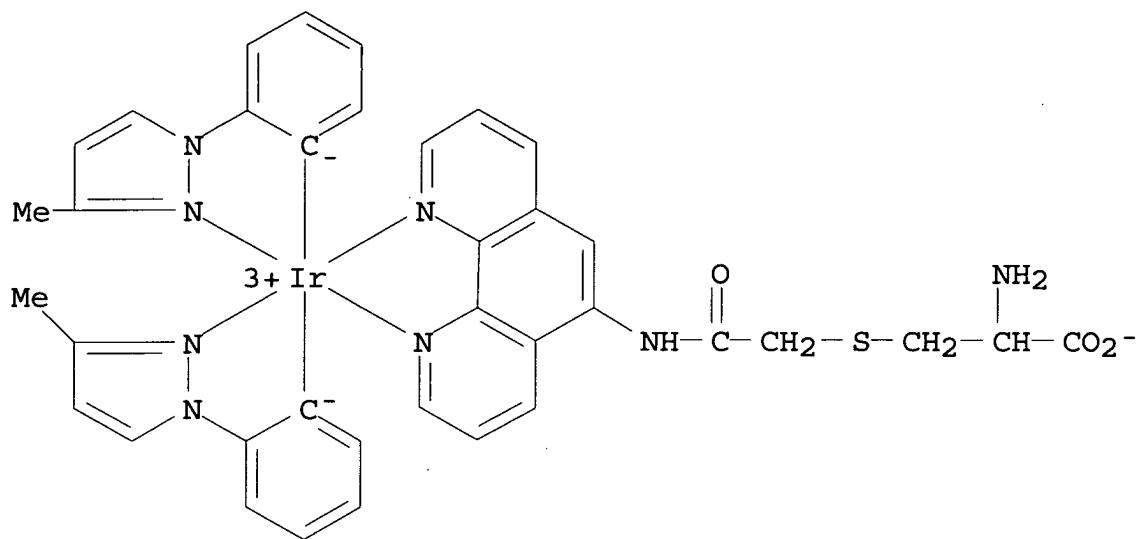
CN Iridium, bis[2-(3-methyl-1H-pyrazol-1-yl-κN2)phenyl-κC][S-[2-oxo-2-[(1,10-phenanthrolin-5-yl-κN1,κN10)amino]ethyl]-L-cysteinato(2-)]-, mono[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 631921-35-2

CMF C37 H33 Ir N8 O3 S

CCI CCS

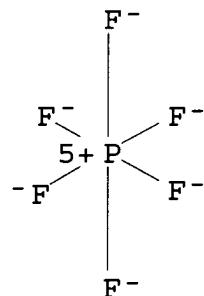


CM 2

CRN 16940-81-1

CMF F6 P . H

CCI CCS



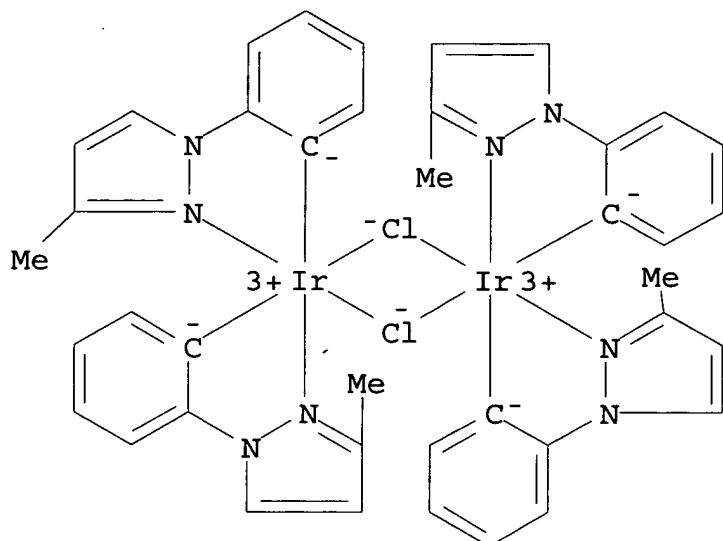
● H+

IT 631921-37-4

(preparation, electrochem. properties, and characterization
of newluminescent cyclometalated iridium diimine complexes as
biol. labeling reagents)

RN 631921-37-4 HCPLUS

CN Iridium, di- μ -chlorotetrakis[2-(3-methyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 6, 72, 75

ST **luminescent** cyclometalated iridium diimine complex prepn
biol labeling reagent; electrochem redox reaction cyclometalated
iridium diimine complex; crystal mol structure cyclometalated
iridium methylphenylpyrazole aminobipyridine complex

IT Avidins
(conjugates; preparation, electrochem. properties, and
characterization of new **luminescent** cyclometalated
iridium diimine complexes as biol. labeling reagents)

IT Redox reaction
(electrochem.; preparation, electrochem. properties, and
characterization of new **luminescent** cyclometalated
iridium diimine complexes as biol. labeling reagents)

IT Biotinylation
Charge transfer interaction
Emission spectra
Labels
Luminescence
UV and visible spectra
(preparation, electrochem. properties, and characterization
of new
luminescent cyclometalated iridium diimine complexes as
biol. labeling reagents)

IT Albumins, preparation

(serum, human, conjugates; preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **631921-38-5P**
(crystal structure; preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **631920-92-8P**
(mol. structure; preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **631920-82-6P**
(preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **383413-25-0P** **383413-32-9P** **631920-80-4P** **631920-86-0P**
631920-98-4P **631921-04-5P** **631921-06-7P** **631921-10-3P**
631921-16-9P **631921-20-5P** **631921-22-7P**
631921-28-3P
(preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **383413-27-2P** **631920-84-8P** **631920-88-2P** **631920-90-6P**
631920-94-0P **631920-96-2P** **631921-00-1P**
631921-02-3P **631921-08-9P** **631921-12-5P** **631921-14-7P**
631921-18-1P **631921-24-9P** **631921-26-1P** **631921-30-7P**
631921-32-9P
(preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT **631921-34-1P** **631921-36-3P**
(preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as biol. labeling reagents)

IT 52-90-4, Cysteine, reactions 70-18-8, Glutathione, reactions 14151-21-4, [2,2'-Bipyridin]-4-amine 38020-81-4 54258-41-2, 1,10-Phenanthrolin-5-amine 54907-61-8, Iodoacetic anhydride 603109-48-4 **631921-37-4** 632327-35-6 632327-36-7 632327-37-8
(preparation, electrochem. properties, and characterization of new **luminescent** cyclometalated iridium diimine complexes as

biol. labeling reagents)

REFERENCE COUNT: 85 THERE ARE 85 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE
IN THE RE FORMAT

L16 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:737213 HCAPLUS
DOCUMENT NUMBER: 139:267722
TITLE: White light emitting OLEDs
with combined monomer and aggregate emission
INVENTOR(S): Thompson, Mark E.; Brooks, Jason; Adamovich,
Vadim; Forrest, Stephen R.; D'Andrade, Brian
PATENT ASSIGNEE(S): The Trustees of Princeton University, USA
SOURCE: U.S. Pat. Appl. Publ., 40 pp., Cont.-in-part
of U.S. Ser. No. 112,257.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----	-----
	-----	-----	-----	-----
	US 2003175553	A1	20030918	US 2002-328914

2002

1224

US 6863997	B2	20050308	
US 2003124381	A1	20030703	US 2002-112257

2002

0329

US 6869695	B2	20050322	
US 2004048101	A1	20040311	US 2003-402684

2003

0328

PRIORITY APPLN. INFO.: US 2001-344133P P

2001

1228

US 2002-112257

A2

2002

0329

US 2002-368496P

P

2002

0329

US 2002-328914

A2

2002

1224

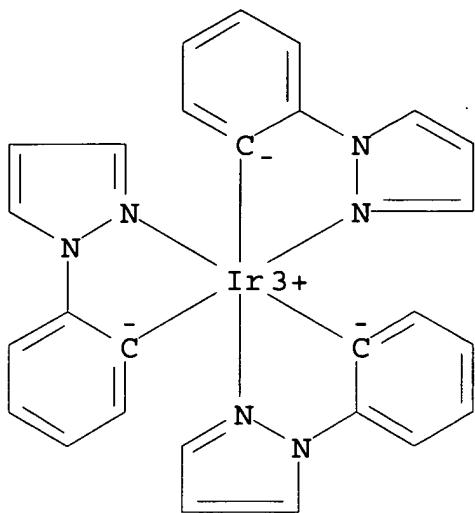
AB Organic **light-emitting** devices are described which include an emissive layer comprising an aggregate **emitter**, and a monomer **emitter** where the emission from the aggregate **emitter** is lower in energy than the emission from the monomer **emitter**, and where the combined emission of the aggregate **emitter** and the monomer **emitter** sufficiently spans the visible spectrum to give a white emission. Organic **light-emitting** devices in which the emissive layer is also a hole-transporting layer or an electron-transporting layer are also discussed, as is a **light** source incorporating the devices.

IT 359014-72-5

(Ir(ppz)₃, electron-blocking layer; white-**light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

RN 359014-72-5 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI)
(CA INDEX NAME)



IC ICM H05B033-14
 NCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 22, 76, 78
 ST white **electroluminescent** device OLED monomer aggregate
 luminescence light source
 IT Light sources
 (incorporating **white-light-emitting** OLEDs
 with combined monomer and aggregate emission from
 emitters in single emissive region)
 IT Polymers, uses
 (matrix of emissive layer; **white-light-**
 emitting OLEDs with combined monomer and aggregate
 emission from **emitters** in single emissive region)
 IT **Phosphorescent** substances
 (organometallic, **emitter**; **white-light-**
 emitting OLEDs with combined monomer and aggregate
 emission from **emitters** in single emissive region)
 IT Coordination compounds
 Organometallic compounds
 (**phosphorescent emitter**; **white-**
 light-emitting OLEDs with combined monomer
 and aggregate emission from **emitters** in single
 emissive region)
 IT **Electroluminescent** devices
 (**white-emitting**, organic; **white-light-**
 emitting OLEDs with combined monomer and aggregate
 emission from **emitters** in single emissive region)

IT Aggregates
Excimer
Exciplex
(white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 58328-31-7
(CBP, emitting host; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 376367-93-0
(FIr(pic), electron-blocking layer; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 400654-08-2
(FPt, aggregate blue emitter, CBP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 488759-65-5
(FPt2, CBP and mCP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 562043-95-2
(FPt3, CBP and mCP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 488759-66-6
(FPt4, CBP and mCP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 359014-72-5
(Ir(ppz)3, electron-blocking layer; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 150405-69-9, TAZ
(light emitting layer; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

IT 550378-78-4
(mCP, emitting host; white-light-emitting OLEDs with combined monomer and aggregate emission from emitters in single emissive region)

L16 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:664126 HCAPLUS
DOCUMENT NUMBER: 139:355837

TITLE: Effects of exciton and charge confinement on the performance of white organic p-i-n electrophosphorescent emissive excimer devices
AUTHOR(S): D'Andrade, Brian W.; Forrest, Stephen R.
CORPORATE SOURCE: Department of Electrical Engineering, Princeton University, Princeton, NJ, 08544, USA
SOURCE: Journal of Applied Physics (2003), 94(5), 3101-3109
CODEN: JAPIAU; ISSN: 0021-8979
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The quantum efficiency of triplet excimer-based white organic p-i-n

light-emitting devices (WOLEDs) depends exponentially on the thickness of the emissive layer (EML), while the voltage increases approx. linearly with EML thickness. The EML consists of the square planar Pt excimer emitting complex, Pt(II) [2-(4',6'-difluorophenyl-N, C2') (2,4-pentanedionato)] doped into N,N'-dicarbazolyl-3,5-benzene, and the electron capture length within the EML is found to vary from 90 ± 10 to 120 ± 10 Å, depending on whether or not the transport layers are p or n doped. The p-i-n WOLED exhibits peak external quantum and power efficiencies of $(5.2 \pm 0.5)\%$ and (11 ± 1) lm/W, resp., and at 500 cd/m² these efficiencies decrease to $(4.2 \pm 0.4)\%$ and (4.3 ± 0.4) lm/W. The device has color coordinates of (0.35, 0.43) and a color rendering index of 75. The authors also demonstrate the importance of an electron

blocking layer that reduces the leakage of excitons and charge out

of thin EMLs, thereby improving the quantum efficiency of devices by a factor approaching 3, as compared to devices lacking the blocking layer.

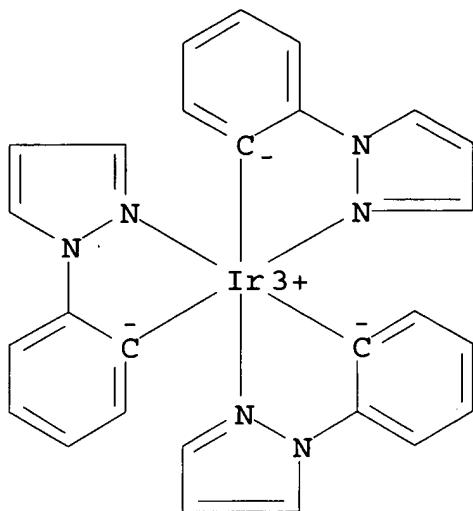
IT 359014-72-5

(effects of exciton and charge confinement on white organic p-i-n

electrophosphorescent emissive excimer devices containing)

RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl-κN2)phenyl-κC]- (9CI)
(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT **Electroluminescent devices**

(thin-film; effects of exciton and charge confinement on white organic p-i-n electrophosphorescent emissive excimer devices)

IT 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 4733-39-5,
2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 123847-85-8, NPD
124729-98-2, MTDATA 359014-72-5 400654-08-2
550378-78-4

(effects of exciton and charge confinement on white organic p-i-n electrophosphorescent emissive excimer devices containing)

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L16 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:551818 HCAPLUS

DOCUMENT NUMBER: 139:124828

TITLE: White-light-emitting OLEDs
with combined monomer and aggregate emission
from emitters in single emissive
region

INVENTOR(S): Thompson, Mark E.; Brooks, Jason; Adamovich, Vadim; Forrest, Stephen R.; D'andrade, Brian

PATENT ASSIGNEE(S): The Trustees of Princeton University, USA;
The

SOURCE: University of Southern California
 PCT Int. Appl., 70 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			
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WO 2003059015	A1	20030717	WO 2002-US41578

2002

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
 KP, KR, KZ, LC, LR, LS, LT, LU, LV, MA, MD, MG, MK,
 MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
 SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC,
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 ML, MR, NE, SN, TD, TG

US 2003124381	A1	20030703	US 2002-112257
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2002

0329

US 6869695	B2	20050322	
EP 1472908	A1	20041103	EP 2002-806244

2002

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, SK

PRIORITY APPLN. INFO.:	US 2001-344133P	P
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2001

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US 2002-112257

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US 2002-368496P

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WO 2002-US41578

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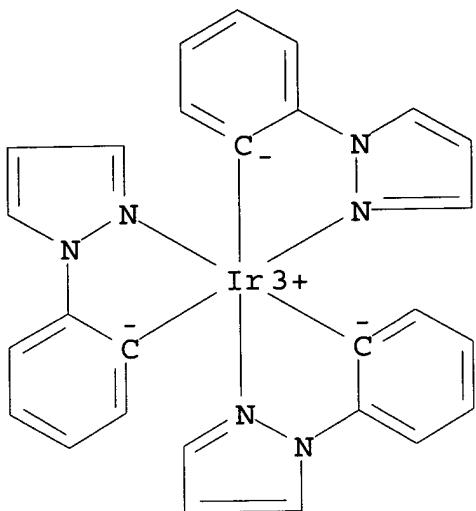
1226

AB Organic **light-emitting** devices are described which include an emissive layer comprising an aggregate **emitter**, and a monomer **emitter** where the emission from the aggregate **emitter** is lower in energy than the emission from the monomer **emitter**, and where the combined emission of the aggregate **emitter** and the monomer **emitter** sufficiently spans the visible spectrum to give a white emission. Organic **light-emitting** devices in which the emissive layer is also a hole-transporting layer or an electron-transporting layer are also discussed, as is a **light** source incorporating the devices.

IT 359014-72-5
(electron-blocking layer; white-light-
emitting OLEDs with combined monomer and aggregate
emission from **emitters** in single emissive region)

RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI)
(CA INDEX NAME)



IC ICM H05B033-14
 ICS C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 22, 76, 78

ST white **electroluminescent** device OLED monomer aggregate luminescence light source

IT **Light sources**
 (incorporating **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Polymers, uses**
 (matrix of emissive layer; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Phosphorescent substances**
 (organometallic, **emitter**; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Coordination compounds**
 Organometallic compounds
 (**phosphorescent emitter**; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Electroluminescent devices**
 (**white-emitting**, organic; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT Aggregates
Excimer
Exciplex
(white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 562043-95-2
(CBP and mCP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 58328-31-7
(CBP, **emitting host**; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 400654-08-2
(aggregate **emitter**, CBP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 359014-72-5
(electron-blocking layer; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 4733-39-5, Bathocuproine
(electron-transporting, hole- and exciton-blocking layer; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl
(hole-transporting layer; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 550378-78-4
(mCBP, **emitting host**; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 25067-59-8, Poly(9-vinylcarbazole)
(matrix in emissive layer; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 400653-92-1
(monomer **emitter**, CBP doped with; white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 155090-83-8
(white-light-emitting OLEDs with combined monomer and aggregate emission from **emitters** in

single emissive region)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE
IN THE RE FORMAT

L16 ANSWER 18 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:511900 HCPLUS
DOCUMENT NUMBER: 139:92513
TITLE: White-light-emitting OLEDs
from combined monomer and aggregate emission
INVENTOR(S): Thompson, Mark E.; Brooks, Jason; Adamovich,
Vadim; Forrest, Stephen R.; D'Andrade, Brian
PATENT ASSIGNEE(S): The Trustees of Princeton University, USA;
The
SOURCE: University of Southern California
U.S. Pat. Appl. Publ., 31 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----	-----
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	US 2003124381	A1	20030703	US 2002-112257
2002				
0329				
	US 6869695	B2	20050322	
	US 2003175553	A1	20030918	US 2002-328914
2002				
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	US 6863997	B2	20050308	
	WO 2003059015	A1	20030717	WO 2002-US41578
2002				
1226				
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KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC,
VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,
SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG

EP 1472908

A1 20041103

EP 2002-806244

2002

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
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EE, SK

US 2004048101

A1 20040311

US 2003-402684

2003

0328

PRIORITY APPLN. INFO.:

US 2001-344133P

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US 2002-112257

A2

2002

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US 2002-368496P

P

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0329

US 2002-328914

A2

2002

1224

WO 2002-US41578

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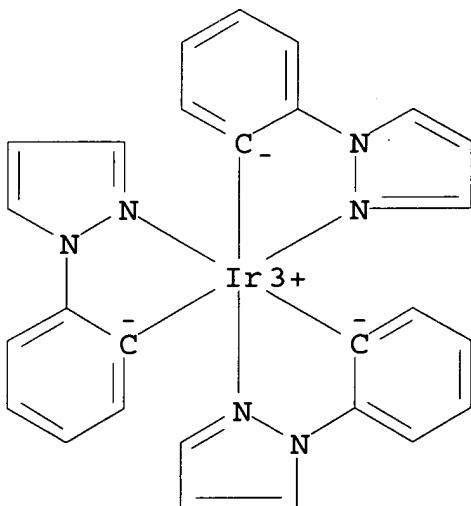
2002

1226

AB Organic **light-emitting** devices are described which include an emissive layer comprising an aggregate **emitter**, and a monomer **emitter** where the emission from the aggregate **emitter** is lower in energy than the emission from the monomer **emitter**, and where the combined emission of the aggregate **emitter** and the monomer **emitter** sufficiently spans the visible spectrum to give a white emission. Organic **light-emitting** devices in which the emissive layer is also a hole-transporting layer or an electron-transporting layer are also discussed, as is a **light source** incorporating the devices.

IT 359014-72-5
 (electron-blocking layer; white-light-
 emitting OLEDs with combined monomer and aggregate
 emission from **emitters** in single emissive region)

RN 359014-72-5 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI)
 (CA INDEX NAME)

IC ICM H05B033-14

NCL 428690000; 428917000; 428212000; 313504000; 313506000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76, 78

ST white **electroluminescent** device OLED monomer aggregate emission

IT **Light sources**
(incorporating **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Polymers, uses**
(matrix of emissive layer; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Phosphorescent substances**
(organometallic, **emitter**; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Coordination compounds**
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(**phosphorescent emitter**; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT **Electroluminescent devices**
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IT **Aggregates**
Excimer
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(**white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 488759-65-5
(CBP doped with; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 58328-31-7
(CBP, **emitting host**; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 400654-08-2
(aggregate **emitter**, CBP doped with; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 359014-72-5
(electron-blocking layer; **white-light-emitting** OLEDs with combined monomer and aggregate emission from **emitters** in single emissive region)

IT 4733-39-5, Bathocuproine
(electron-transporting, hole- and exciton-blocking layer;
white-light-emitting OLEDs with combined
monomer and aggregate emission from **emitters** in
single emissive region)

IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl
(hole-transporting layer; white-light-
emitting OLEDs with combined monomer and aggregate
emission from **emitters** in single emissive region)

IT 25067-59-8, Poly(9-vinylcarbazole)
(matrix in emissive layer; white-light-
emitting OLEDs with combined monomer and aggregate
emission from **emitters** in single emissive region)

IT 400653-92-1
(monomer **emitter**, CBP doped with; white-light-
emitting OLEDs with combined monomer and aggregate
emission from **emitters** in single emissive region)

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 155090-83-8
(white-light-emitting OLEDs with combined
monomer and aggregate emission from **emitters** in
single emissive region)

L16 ANSWER 19 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:391359 HCPLUS
DOCUMENT NUMBER: 139:117521
TITLE: Synthesis and Characterization of Facial and
Meridional Tris-cyclometalated Iridium(III)
Complexes
AUTHOR(S): Tamayo, Arnold B.; Alleyne, Bert D.;
Djurovich, Peter I.; Lamansky, Sergey; Tsyba,
Irina; Ho, Nam N.; Bau, Robert; Thompson,
Mark
CORPORATE SOURCE: Department of Chemistry, University of
Southern California, Los Angeles, CA,
90089-0744, USA
SOURCE: Journal of the American Chemical Society
(2003), 125(24), 7377-7387
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:117521
AB The synthesis, structures, electrochem., and photophysics of
facial (fac) and meridional (mer) tris-cyclometalated Ir(III)
complexes are reported. The complexes have the general formula
Ir(C.cxa.N)3 [where C.cxa.N is a monoanionic cyclometalating

ligand; 2-phenylpyridyl (ppy), 2-(p-tolyl)pyridyl (tpy), 2-(4,6-difluorophenyl)pyridyl (46dfppy), 1-phenylpyrazolyl (ppz), 1-(4,6-difluorophenyl)pyrazolyl (46dfppz), or 1-(4-trifluoromethylphenyl)pyrazolyl (tfmppz)]. Reaction of the dichloro-bridged dimers [(C.cxa.N)2Ir(μ-Cl)2Ir(C.cxa.N)2] with 2 equiv of HC.cxa.N at 140-150° forms the corresponding meridional isomer, while higher reaction temps. give predominantly

the facial isomer. Both facial and meridional isomers can be obtained in good yield (>70%). The meridional isomer of Ir(tpy)3 and facial and meridional isomers of Ir(ppz)3 and Ir(tfmppz)3 were

structurally characterized using x-ray crystallog. The facial isomers have nearly identical bond lengths (average Ir-C = 2.018 Å, average Ir-N = 2.123 Å) and angles. The three meridional isomers have the expected bond length alternations for the differing trans influences of Ph and pyridyl/pyrazolyl ligands. Bonds that are trans to Ph groups are longer (Ir-C average =

2.071

Å, Ir-N average = 2.031 Å) than when they are trans to heterocyclic groups. The Ir-C and Ir-N bonds with trans N and C, resp., have bond lengths very similar to those observed for the corresponding facial isomers. DFT calcns. of both the singlet (ground) and the triplet states of the compds. suggest that the HOMO levels are a mixture of Ir and ligand orbitals, while the

LUMO

is predominantly ligand-based. All of the complexes show reversible oxidation between 0.3 and 0.8 V, vs. Fc/Fc+. The meridional isomers are easier to oxidize by .apprx.50-100 mV.

The

phenylpyridyl-based complexes have reduction potentials between

-2.5

and -2.8 V, whereas the phenylpyrazolyl-based complexes exhibit

no

reduction up to the solvent limit of -3.0 V. All of the compds. have

intense absorption bands in the UV region assigned into 1(π → π*) transitions and weaker MLCT (metal-to-ligand charge transfer) transitions that extend to the visible region. The MLCT transitions of the pyrazolyl-based complexes are hypsochromically shifted relative to those of the pyridyl-based compds. The phenylpyridyl-based Ir(III) tris-cyclometalates exhibit intense emission both at room temperature and at 77 K, whereas

the phenylpyrazolyl-based derivs. emit strongly only at 77 K. The emission energies and lifetimes of the phenylpyridyl-based complexes (450-550 nm, 2-6 μs) and

phenylpyrazolyl-based compds. (390-440 nm, 14-33 μ s) are characteristic for a mixed ligand-centered/MLCT excited state. The meridional isomers for both pyridyl and pyrazolyl-based cyclometalates show markedly different spectroscopic properties than do the facial forms. Isolated samples of mer-Ir(C₆x₃N)₃ complexes can be thermally and photochem. converted to facial forms, indicating that the meridional isomers are kinetically favored products. The lower thermodn. stabilities of the meridional isomers are likely related to structural features of these complexes; i.e., the meridional configuration places strongly trans influencing Ph groups opposite each other, whereas all three Ph groups are opposite pyridyl or pyrazolyl groups in the facial complexes. The strong trans influence of the Ph groups

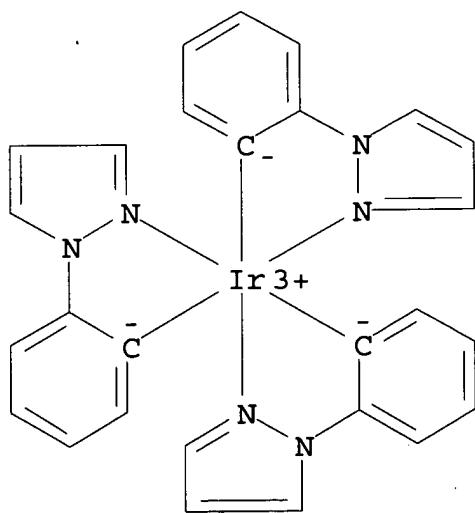
in the meridional isomers leads to the observation that they are easier to oxidize, exhibit broad, red shifted emission, and have lower quantum efficiencies than their facial counterparts.

IT 562824-23-1P 562824-25-3P

(crystal structure, isomerization; preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

RN 562824-23-1 HCAPLUS

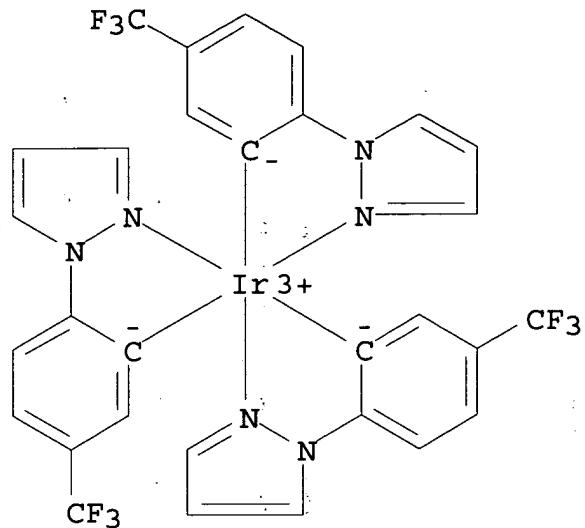
CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-21)- (9CI) (CA INDEX NAME)



RN 562824-25-3 HCAPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)-5-(trifluoromethyl)phenyl- κ C]-, (OC-6-21)- (9CI) (CA INDEX NAME)

NAME)

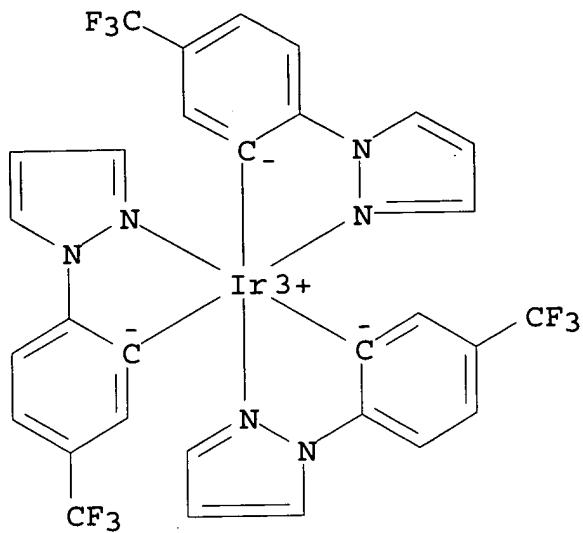


IT 562099-09-6P 562824-20-8P

(crystal structure; preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

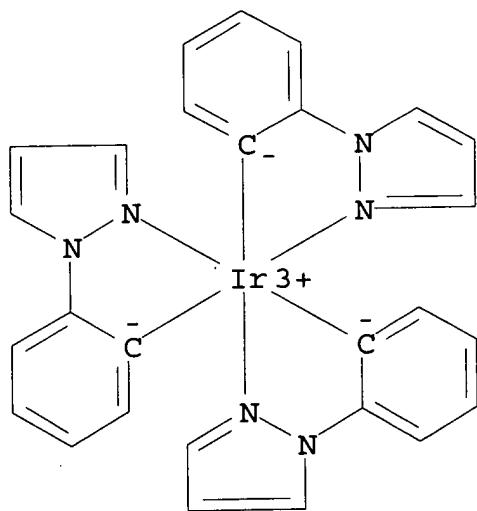
RN 562099-09-6 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)-5-(trifluoromethyl)phenyl- κ C]-, (OC-6-22)- (9CI) (CA INDEX
NAME)



RN 562824-20-8 HCPLUS

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(OC-6-22)- (9CI) (CA INDEX NAME)

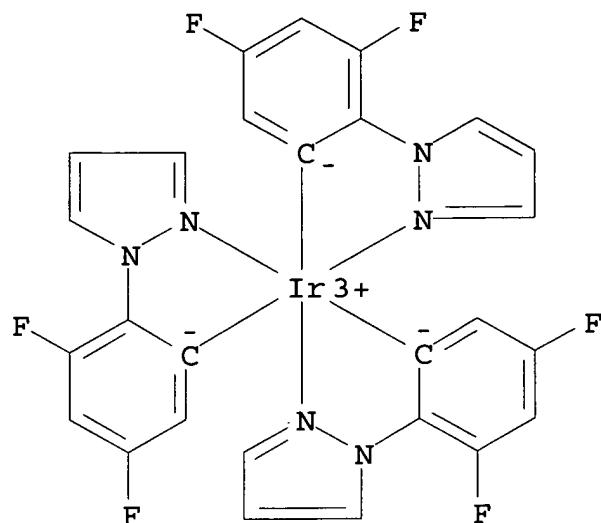


IT 562824-24-2P

(isomerization; preparation, structure, DFT calcns.,
electrochem.

redox and photophysics of facial and meridional
tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl
complexes)

RN 562824-24-2 HCAPLUS

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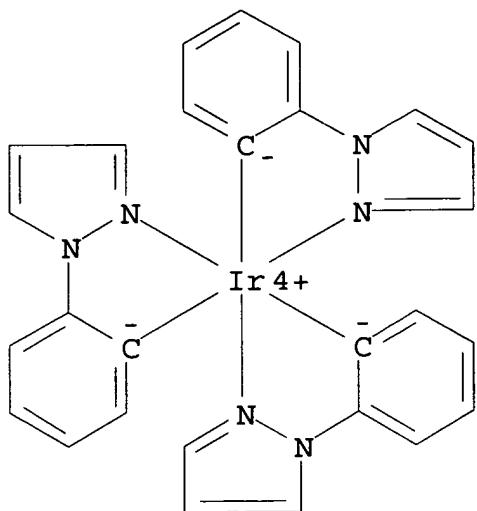
IT 562099-19-8 562099-20-1 562099-22-3

562824-31-1 562824-32-2 562824-34-4

(preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

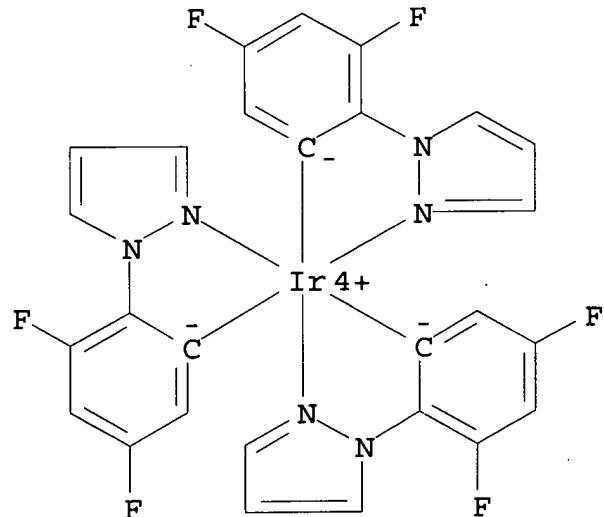
RN 562099-19-8 HCAPLUS

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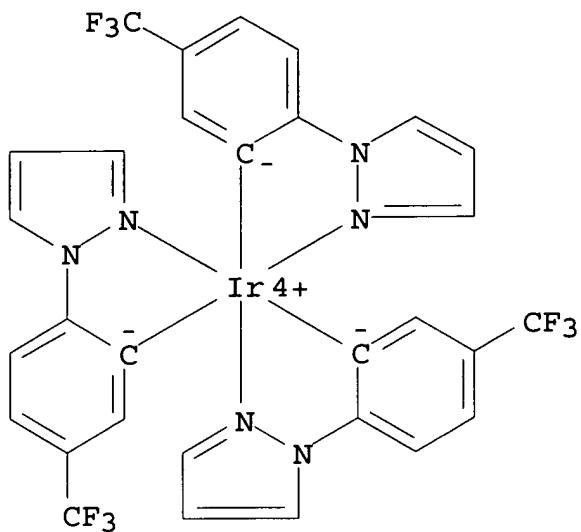
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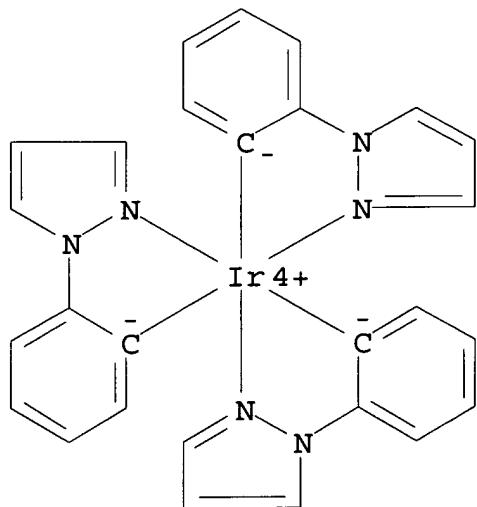
RN 562099-22-3 HCPLUS

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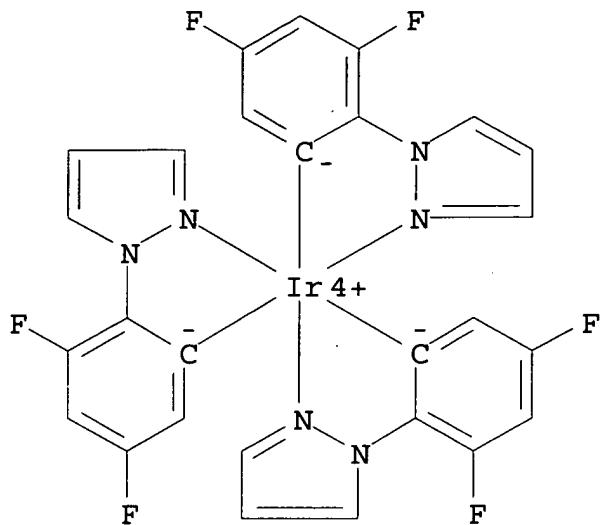
RN 562824-31-1 HCPLUS

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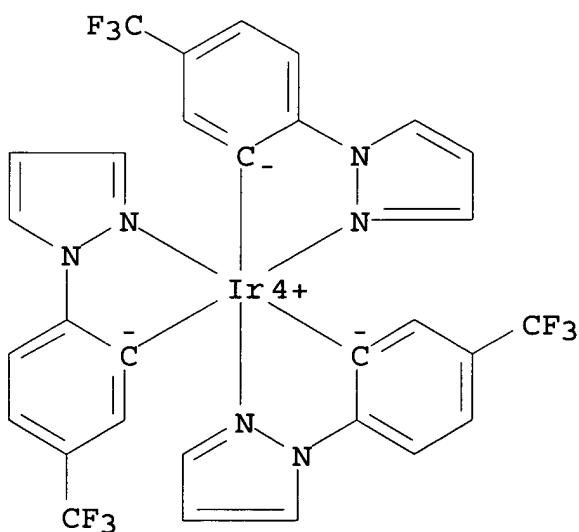
RN 562824-32-2 HCPLUS

CN Iridium(1+), tris[3,5-difluoro-2-(1H-pyrazol-1-yl-κN2)phenyl-κC]-, (OC-6-21)- (9CI) (CA INDEX NAME)



RN 562824-34-4 HCAPLUS

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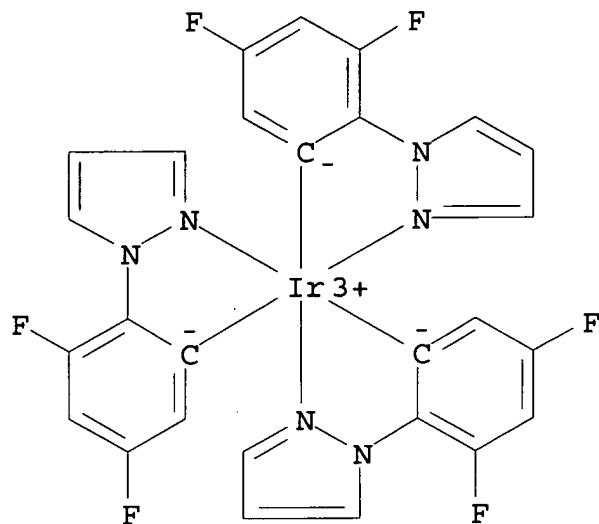


IT 562099-08-5P

(preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

RN 562099-08-5 HCAPLUS

CN Iridium, tris[3,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]-, (OC-6-22)- (9CI) (CA INDEX NAME)

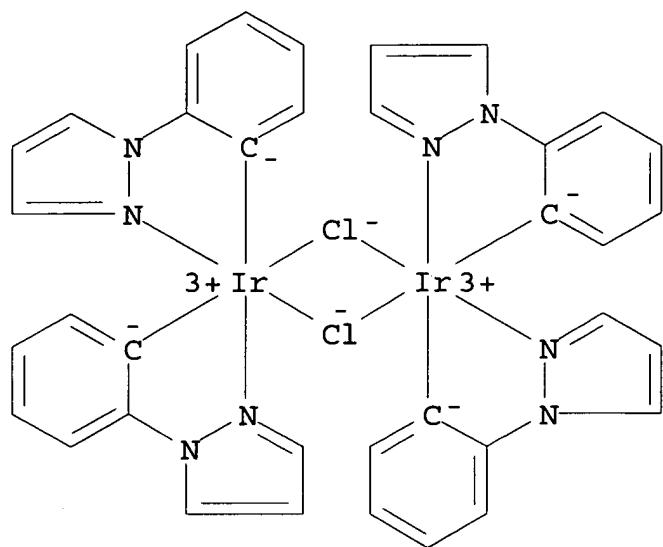


IT 57175-14-1 562099-11-0 562099-12-1
562099-13-2 562099-14-3

(preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

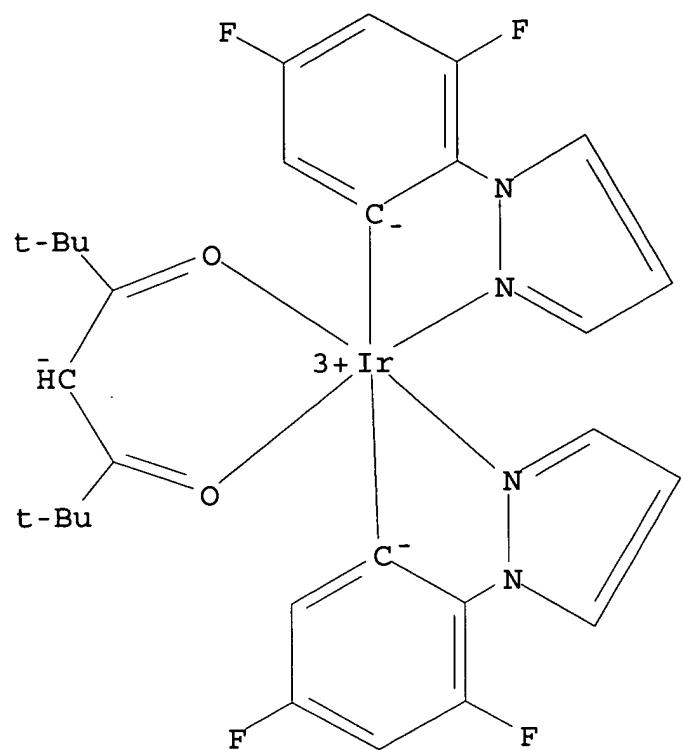
RN 57175-14-1 HCPLUS

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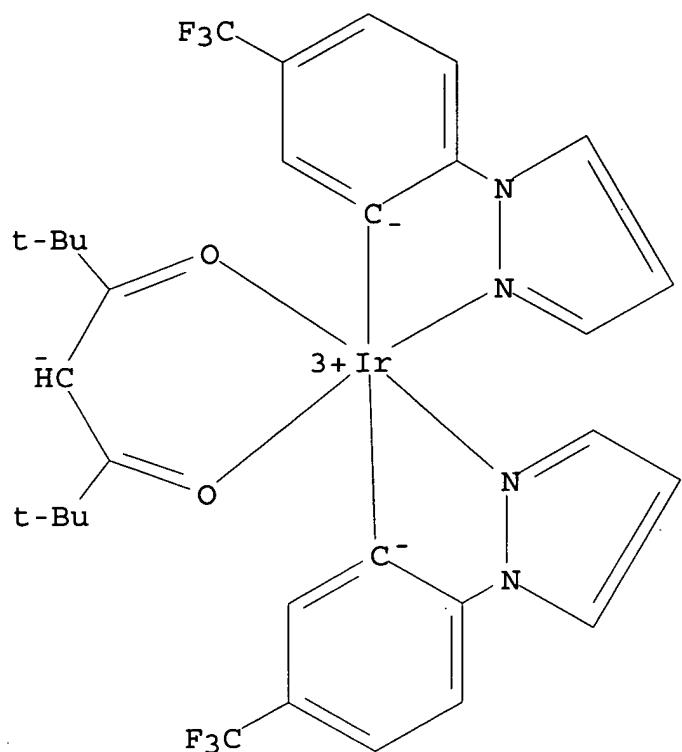
RN 562099-11-0 HCAPLUS

CN Iridium, bis[3,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C](2,2,6,6-tetramethyl-3,5-heptanedionato- κ O, κ O')- (9CI) (CA INDEX NAME)



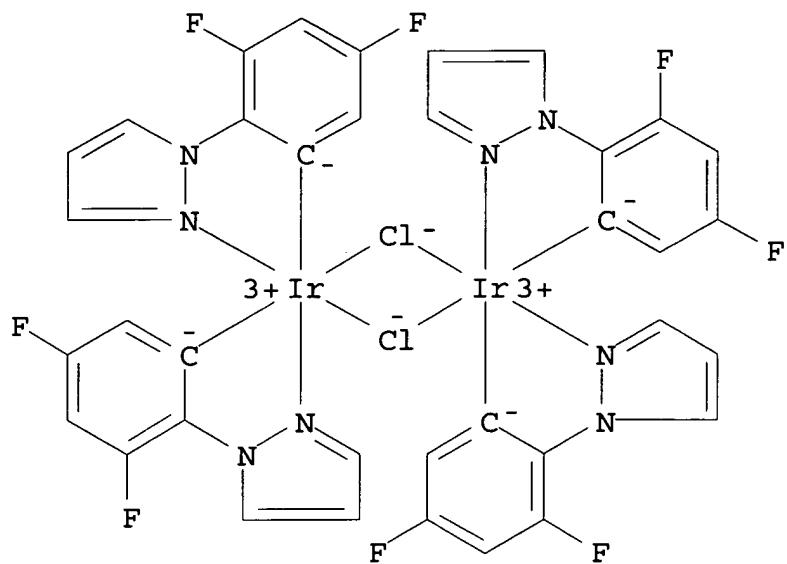
RN 562099-12-1 HCPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl-κN2)-5-(trifluoromethyl)phenyl-κC] (2,2,6,6-tetramethyl-3,5-heptanedionato-κO,κO') - (9CI) (CA INDEX NAME)



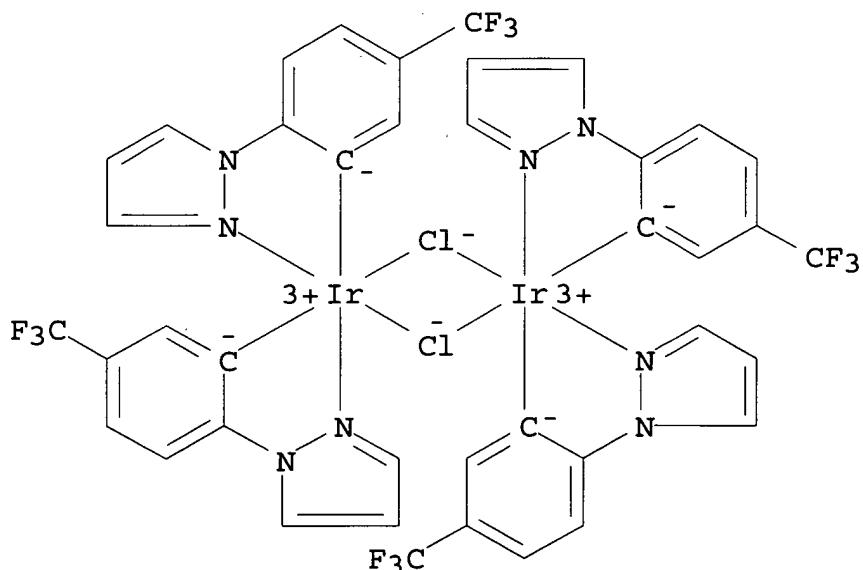
RN 562099-13-2 HCPLUS

CN Iridium, di- μ -chlorotetrakis[3,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]di-, stereoisomer (9CI) (CA INDEX NAME)



RN 562099-14-3 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl- κ N2)-5-(trifluoromethyl)phenyl- κ C]di-, stereoisomer (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 72, 74, 75

ST iridium cyclometalated facial meridional prepн structure redn potential; phenylpyridyl iridium tris cyclometalated complex prepн

structure electrochem photophysics; phenylpyrazolyl iridium tris cyclometalated complex prepн structure electrochem photophysics; luminescence iridium tris cyclometalated facial meridional phenylpyridyl phenylpyrazolyl; crystal structure iridium phenylpyridyl phenylpyrazolyl tris cyclometalated complex prepн; mol structure iridium phenylpyridyl phenylpyrazolyl tris cyclometalated complex; isomerization thermal photochem

meridional

iridium tris cyclometalated phenylpyridyl phenylpyrazolyl

IT HOMO (molecular orbital)

Hypsochromic effect

LUMO (molecular orbital)

Luminescence

Total energy

UV and visible spectra

(preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

IT **562824-23-1P 562824-25-3P**

(crystal structure, isomerization; preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

IT **562099-09-6P 562824-20-8P**

(crystal structure; preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

IT 344426-19-3P 562824-22-0P **562824-24-2P**

(isomerization; preparation, structure, DFT calcns., electrochem.

redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

IT 562099-16-5 562099-17-6 562099-18-7 **562099-19-8**

562099-20-1 562099-22-3 562099-23-4

562099-24-5 562099-25-6 562099-26-7 562099-27-8

562099-28-9 562824-28-6 562824-29-7 562824-30-0

562824-31-1 562824-32-2 562824-34-4

562824-35-5 562824-36-6 562824-37-7 562824-38-8

562824-39-9 562824-58-2

(preparation, structure, DFT calcns., electrochem. redox and photophysics of facial and meridional tris-cyclometalated iridium phenylpyridyl and phenylpyrazolyl complexes)

IT 94928-86-6P 149005-33-4P 391665-84-2P **562099-08-5P**
 (preparation, structure, DFT calcns., electrochem. redox and
 photophysics of facial and meridional tris-cyclometalated
 iridium phenylpyridyl and phenylpyrazolyl complexes)

IT 1008-89-5, 2-Phenylpyridine 1126-00-7, 1-Phenylpyrazole
 4467-06-5 15635-87-7, Tris(acetylacetato)iridium
57175-14-1 92220-65-0 116563-45-2 207797-05-5,
 1-[4-(Trifluoromethyl)phenyl]-1H-pyrazole 391604-55-0,
 2-(2,4-Difluorophenyl)pyridine 562099-10-9 **562099-11-0**
562099-12-1 **562099-13-2** **562099-14-3**
 562099-15-4 562824-27-5
 (preparation, structure, DFT calcns., electrochem. redox and
 photophysics of facial and meridional tris-cyclometalated
 iridium phenylpyridyl and phenylpyrazolyl complexes)

REFERENCE COUNT: 76 THERE ARE 76 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L16 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:279797 HCAPLUS
 DOCUMENT NUMBER: 138:311326
 TITLE: Organic **electroluminescent** device
 containing Ir, Pt, or Os complex for blue
 emission
 INVENTOR(S): Kita, Hiroshi; Yamada, Taketoshi; Matsuura,
 Mitsunobu; Oshiyama, Tomohiro
 PATENT ASSIGNEE(S): Konica Co., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 112 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----
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JP 2003109758	A2	20030411	JP 2001-296657

2001

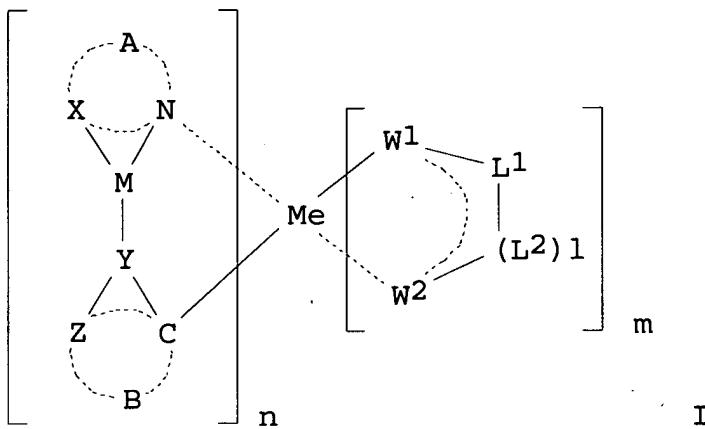
0927

PRIORITY APPLN. INFO.: JP 2001-296657

2001

0927

OTHER SOURCE(S) : MARPAT 138:311326
 GI



AB The invention refers to an organic **electroluminescent** device comprising a metal complex I, [X = C, N or O; M, Y, Z, = C or N; A = atoms necessary for a 5- or 6-membered heterocyclic containing

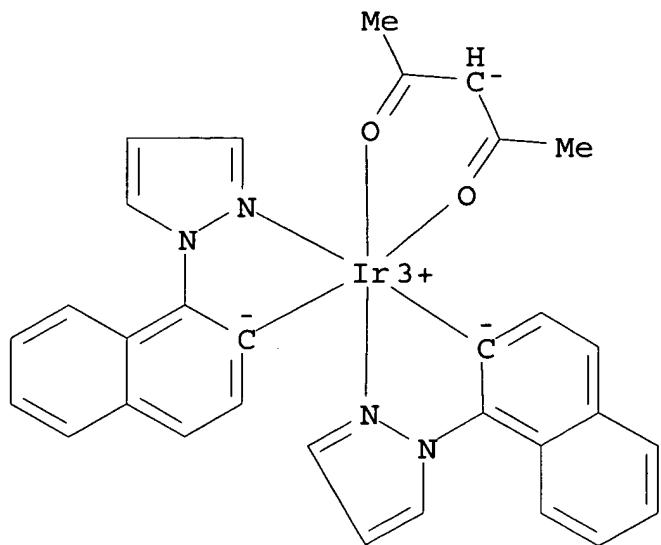
X-M-N; B = atoms necessary for a 5- or 6-membered hydrocarbon or heterocyclic ring; the two rings may each contain substituents, and adjacent groups may join together to form rings; Me = In, Pt or Os; n = 1 - 4; m = dependent on the metal and the value of n; W1,2 = O, N or S; L1 = N or C; L2 = N or O; l = 1,2] wherein the dihedral angle N-M-Y-Z (in other words, the degree of twisting of the two rings) is 9° - 90°.

IT 504409-36-3

(organic **electroluminescent** device containing Ir, Pt, or Os complex for blue emission)

RN 504409-36-3 HCAPLUS

CN Iridium, (2,4-pentanedionato- κ O, κ O')bis[1-(1H-pyrazol-1-yl- κ N2)-2-naphthalenyl- κ C]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 ICS C09K011-06; C07D213-06; C07F015-00
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 ST **electroluminescent device blue iridium metal complex**
 IT **Luminescence**
 (blue; organic **electroluminescent** device containing Ir, Pt, or Os complex for blue emission)
 IT **Electroluminescent devices**
 (organic **electroluminescent** device containing Ir, Pt, or Os complex for blue emission)
 IT 504409-31-8 504409-32-9 504409-33-0 504409-34-1
 504409-35-2 **504409-36-3** 504409-37-4 504409-38-5
 504409-39-6 504409-40-9 504409-41-0 504409-42-1
 504409-43-2 504409-44-3 504409-45-4 504409-46-5
 504409-47-6
 (organic **electroluminescent** device containing Ir, Pt, or Os complex for blue emission)

 L16 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:928080 HCAPLUS
 DOCUMENT NUMBER: 138:17951
 TITLE: Organometallic compounds and
 emission-shifting
 organic electrophosphorescence
 INVENTOR(S): Lamansky, Sergey; Thompson, Mark E.;
 Adamovich, Vadim; Djurovich, Peter I.;
 Adachi,

PATENT ASSIGNEE(S) : Chihaya; Baldo, Marc A.; Forrest, Stephen R.;
 Kwong, Raymond
 Trustees of Princeton University, USA
 SOURCE: U.S. Pat. Appl. Publ., 87 pp., Cont.-in-part
 of U.S. Ser. No. 637,766.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			
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US 2002182441	A1	20021205	US 2001-978455

2001

1016	TW 593625	B	20040621	TW 2001-90119946
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2001

0813	PRIORITY APPLN. INFO.:	US 2000-637766	A2
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2000

0811	US 2001-283814P	P
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2001

0413

AB Organic **light-emitting** devices including an emissive layer comprising an organometallic compound are described in which the organometallic compound comprises a heavy transition metal (e.g., Os, Ir, Pt, or Au) that produces an efficient **phosphorescent** emission at room temperature from a mixture of metal-to-ligand charge transfer and π - π^* ligand states; ≥ 1 mono-anionic bidentate carbon-coordination ligand bound to the heavy transition metal, the ligand(s) being substituted with an electron-donating substituent and/or an

electron-withdrawing substituent which shifts the emission, relative to the unsubstituted ligand, to either the blue, green, or red region of the visible spectrum; and ≥ 1 non-monoanionic bidentate carbon-coordination ligand bound to the heavy transition metal which ligand(s) causes the emission to have

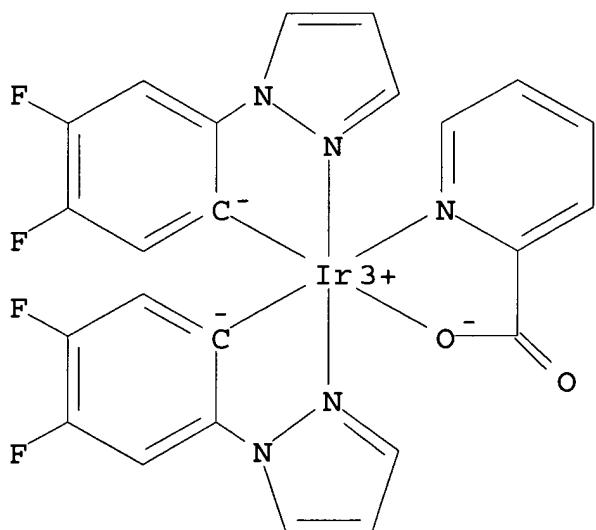
a well defined vibronic structure. The organometallic compds. are also claimed.

IT 400654-01-5P

(organic light-emitting devices using emission shifting organometallic complexes and the complexes)

RN 400654-01-5 HCAPLUS

CN Iridium, bis[4,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C](2-pyridinecarboxylato- κ N1, κ O2) - (9CI) (CA INDEX NAME)

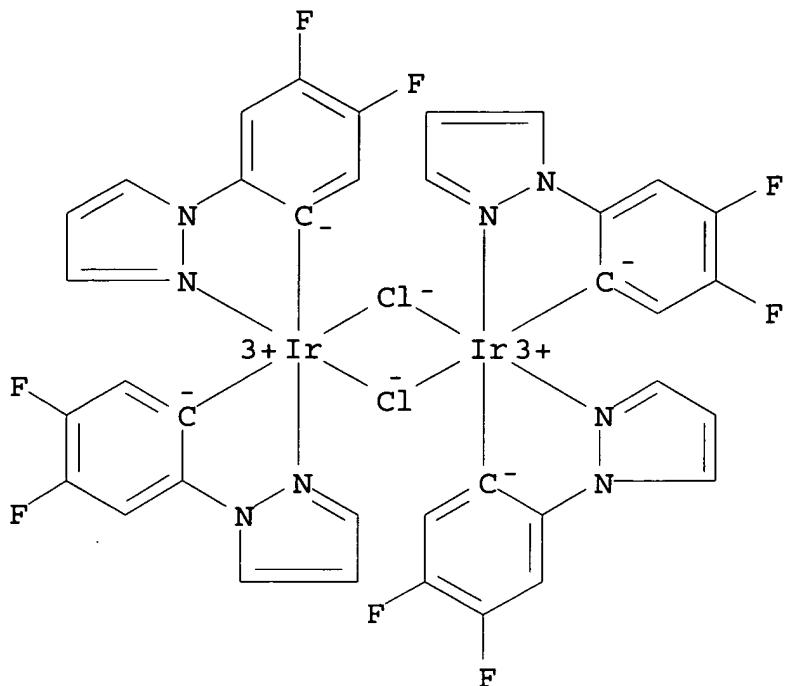


IT 400654-00-4P

(organic light-emitting devices using emission shifting organometallic complexes and the complexes)

RN 400654-00-4 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[4,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
ICS C09K011-06

NCL 428690000; 428917000; 313504000; 313506000; 257102000; 257103000;
252301160; 544225000; 546002000; 548101000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

ST org **light emitting** device emission shifting
organometallic complex

IT Luminescent substances

Phosphorescent substances

(organic **light-emitting** devices using emission
shifting organometallic complexes and the complexes)

IT Electroluminescent devices

(organic; organic **light-emitting** devices using
emission shifting organometallic complexes and the complexes)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, Bathocuproine 31248-39-2 50926-11-9, Indium tin oxide 58328-31-7, 4,4'-N,N'-Dicarbazolylbiphenyl 65181-78-4, TPD 94928-86-6, fac-Tris(2-phenylpyridine)iridium 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 146162-54-1
(organic **light-emitting** devices using emission
shifting organometallic complexes and the complexes)

IT 40243-13-8P 345659-08-7P 376367-93-0P 376367-95-2P
 391665-84-2P 400653-85-2P 400653-86-3P 400653-87-4P
 400653-88-5P 400653-89-6P 400653-90-9P 400653-91-0P
 400653-92-1P 400653-93-2P 400653-94-3P 400653-95-4P
 400653-96-5P 400653-97-6P 400653-98-7P **400654-01-5P**
 400654-02-6P 400654-04-8P 400654-05-9P 400654-06-0P
 400654-08-2P 400654-10-6P 400654-12-8P 400654-13-9P
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 88821-71-0 125051-45-8 400654-15-1 400655-42-7
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 56-40-6, Glycine, reactions 98-97-5, Pyrazinecarboxylic acid
 98-98-6, Picolinic acid 109-04-6, 2-Bromopyridine 110-86-1,
 Pyridine, reactions 123-54-6, 2,4-Pentadione, reactions
 151-50-8, Potassium cyanide 366-18-7, 2,2'-Bipyridine
 540-72-7, Sodium thiocyanide 603-35-0, Triphenylphosphine,
 reactions 939-23-1, 4-Phenylpyridine 1663-45-2,
 1,2-Bis(diphenylphosphino)ethane 7188-38-7,
 tert-Butylisocyanide
 10025-83-9, Iridium trichloride 15635-87-7, Iridium
 tris(acetylacetone) 18583-60-3, Potassium
 tris(pyrazolyl)borate 40243-18-3 99646-28-3 125081-56-3
 144025-03-6, 2,4-Difluorophenylboronic acid 155475-93-7
 158333-96-1 400653-99-8 400654-03-7 400654-07-1
 400654-09-3 400654-11-7 400654-14-0
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 391604-55-0P 391611-77-1P **400654-00-4P**
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)

L16 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:268568 HCAPLUS
 DOCUMENT NUMBER: 136:310035
 TITLE: Preparation of ortho-metallated iridium
 complexes or their tautomers
 INVENTOR(S): Kimura, Keizo; Igarashi, Tatsuya
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE			

JP 2002105055 A2 20020410 JP 2000-298529

2000

0929
PRIORITY APPLN. INFO.: JP 2000-298529

2000

0929

OTHER SOURCE(S) : MARPAT 136:310035
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE
PRINT

*

AB Ir complexes I [Z11, Z12, Z21, Z22 = nonmetallic atomic group required to form a 5-6-membered (un)substituted (condensed) ring; L1, L2 = direct bond, divalent group; Y1, Y2 = N, C; if Y1 = N, then Q1 = direct bond; if Y1 = C, then Q1 = double bond; if Y2 = N, then Q2 = direct bond; if Y2 = C, then Q2 = double bond] or their tautomers, useful as **electroluminescent** materials (no data), are prepared from Ir compds. II (Z11, Z12, L1, Y1, Q1 = same as above; R1, R3 = aliphatic group, aryl, heterocyclyl; R2 = H, substituent; R1 and R2 or R2 and R3 may be bonded together to form a ring) or their tautomers. II or their tautomers are prepared by hexahaloiridate(III) salts or hexahaloiridate(IV) salts via diiridium complexes III (X = halo; Z11, Z12, Q1, L1 = same as above) or their tautomers. A mixture of K₃IrCl₆, 2-phenylpyridine, and glycerol was stirred at 180° for 2 h to give diiridium complex. MeOH solution of NaOMe was added dropwise to a mixture of the complex, AcCH₂COMe, and CHCl₃ at room temperature over 20 min and the reaction mixture was further stirred at room temperature for 5 h to give

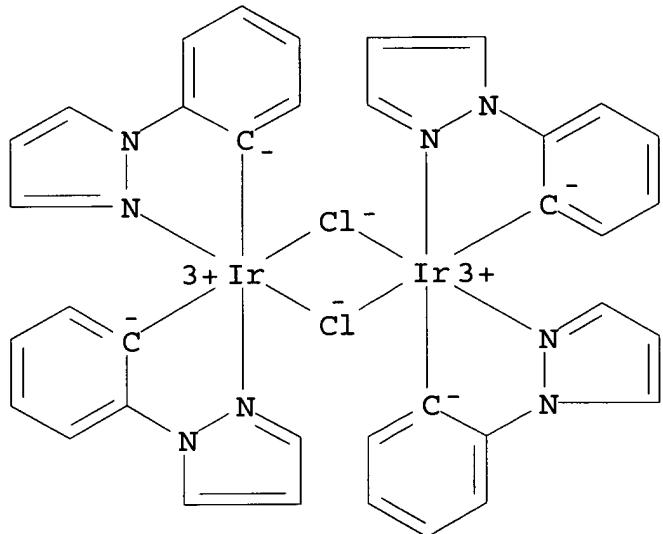
II (R1 = R3 = Me, R2 = H, CQ1Y1Z11 = benzene ring; L1 = direct bond, Z12 makes a pyridine ring together with N). This acetylacetonato complex was further treated with 2-phenylpyridine in glycerin at 170° for 2 h to give tris(2-phenylpyridine)iridium.

IT 57175-14-1P 409319-60-4P

(preparation of ortho-metallated iridium(III) complexes for electroluminescent devices)

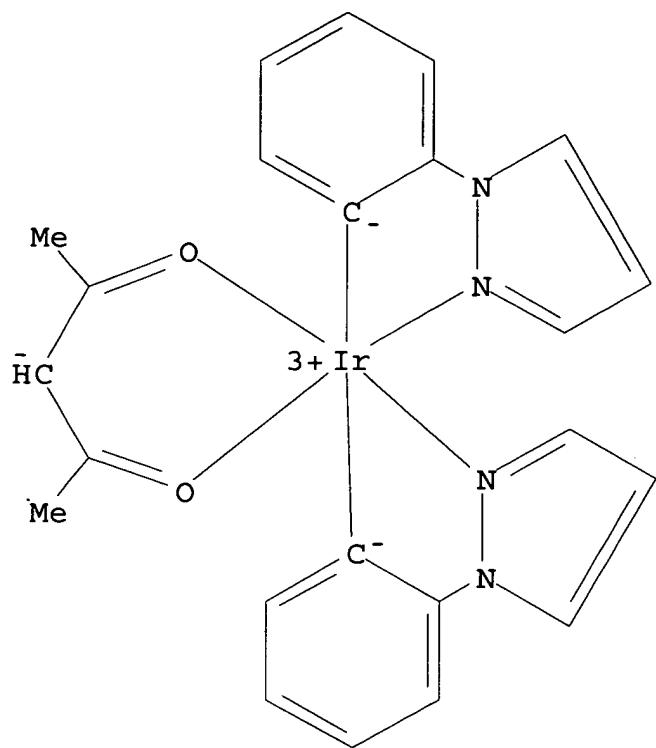
RN 57175-14-1 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-, stereoisomer (9CI) (CA INDEX NAME)



RN 409319-60-4 HCAPLUS

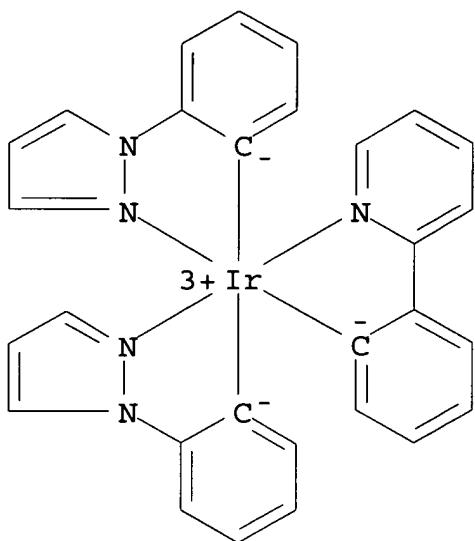
CN Iridium, (2,4-pentanedionato- κ O, κ O')bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI) (CA INDEX NAME)



IT 359014-74-7P 409319-58-0P 409319-59-1P
(preparation of ortho-metallated iridium(III) complexes for
electroluminescent devices)

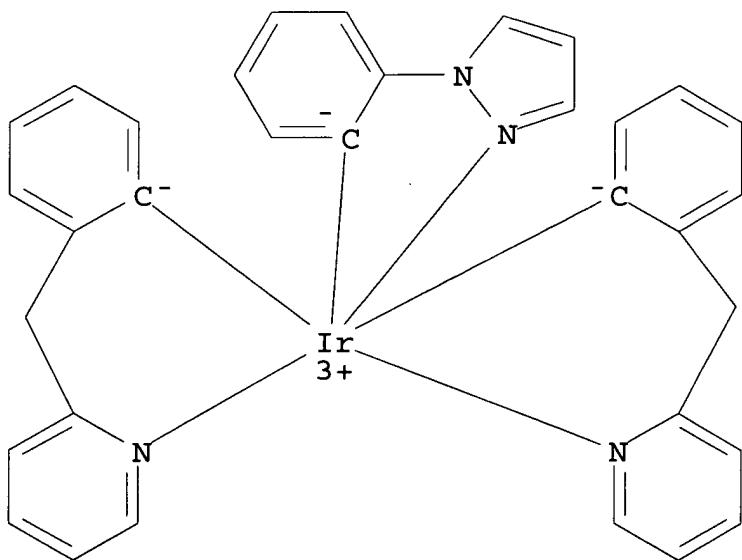
RN 359014-74-7 HCPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl-κN2)phenyl-κC] [2-(2-pyridinyl-κN)phenyl-κC] - (9CI) (CA INDEX NAME)



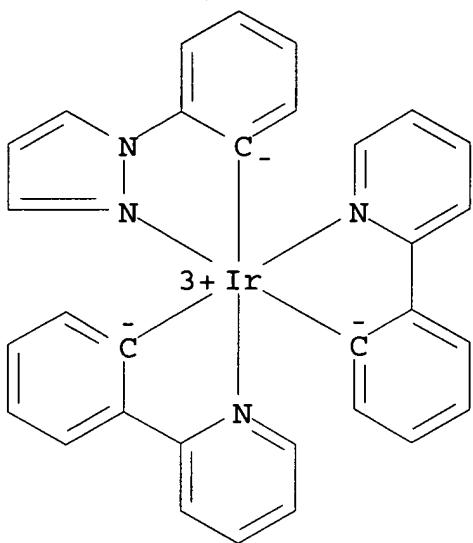
RN 409319-58-0 HCAPLUS

CN Iridium, [2-(1H-pyrazol-1-yl-κN2)phenyl-κC]bis[2-[(2-pyridinyl-κN)methyl]phenyl-κC]- (9CI) (CA INDEX NAME)



RN 409319-59-1 HCAPLUS

CN Iridium, [2-(1H-pyrazol-1-yl-κN2)phenyl-κC]bis[2-(2-pyridinyl-κN)phenyl-κC]- (9CI) (CA INDEX NAME)



IC ICM C07D213-16
IC S C07D213-64; C07D213-70; C07D213-72; C07D221-10; C07D231-12,
C07D241-12; C07D249-04; C07D277-66; C07D401-04; C07D405-04,
C07D409-04; C07D417-04; C07F015-00
CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 74
ST ortho metalated iridium complex prepn **electroluminescent**
device; phenylpyridine iridium complex prepn
electroluminescent device; potassium hexachloroiridate
coordination phenylpyridine
IT **Electroluminescent** devices
(preparation of ortho-metaled iridium(III) complexes for
electroluminescent devices)
IT 57175-14-1P 92220-65-0P 337526-85-9P 359014-63-4P
359014-64-5P **409319-60-4P**
(preparation of ortho-metaled iridium(III) complexes for
electroluminescent devices)
IT 94928-86-6P 359014-65-6P **359014-74-7P**
409319-58-0P 409319-59-1P
(preparation of ortho-metaled iridium(III) complexes for
electroluminescent devices)
IT 101-82-6, 2-Benzylpyridine 123-54-6, Acetylacetone, reactions
1008-89-5, 2-Phenylpyridine 1126-00-7, 1-Phenylpyrazole
14024-41-0 16920-56-2, Dipotassium hexachloroiridate
58861-53-3, 2-(4-Fluorophenyl)pyridine
(preparation of ortho-metaled iridium(III) complexes for
electroluminescent devices)

L16 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:237968 HCAPLUS
 DOCUMENT NUMBER: 136:286687
 TITLE: **Electroluminescent** display device
 comprising iridium coordination compound with
 high brightness and efficiency
 INVENTOR(S): Tsuboyama, Akira; Mizutani, Hidemasa; Okada,
 Shinjiro; Takiguchi, Takao; Miura, Seishi;
 Moriyama, Takashi; Igawa, Satoshi; Kamatani,
 Jun; Furugori, Manabu
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
 SOURCE: Eur. Pat. Appl., 33 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----	-----
	-----	-----	-----	-----
	EP 1191612	A2	20020327	EP 2001-122937

2001

0925

EP 1191612	A3	20030604	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
JP 2003081988	A2	20030319	JP 2001-284600

2001

0919

US 2002063516	A1	20020530	US 2001-960285
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2001

0924

US 6821646	B2	20041123	
US 2005025996	A1	20050203	US 2004-921917

2004

0820

PRIORITY APPLN. INFO.:	JP 2000-292490	A
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2000

0926

JP 2000-360569

A

2000

1128

JP 2001-190866

A

2001

0625

JP 2001-284600

A

2001

0919

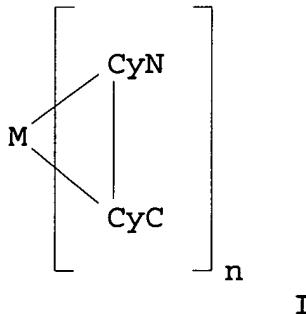
US 2001-960285

A3

2001

0924

OTHER SOURCE(S) : MARPAT 136:286687
 GI



AB A luminescence device is principally constituted by a pair of electrodes and an organic compound layer disposed between. The

layer contains a metal coordination compound represented by the following formula I (M = Ir, Rh, Pd; n = 2, 3; CyN = cyclic group containing a nitrogen atom connected to M and capable of containing

another nitrogen atom and/or a sulfur atom; CyC = cyclic group containing a carbon atom connected to M and capable of containing a

nitrogen atom and/or a sulfur atom, CyN and CyC being connected to

each other via a covalent bond, and each of substituents for CyN and CyC being selected from halogen atom, nitro group, trialkylsilyl containing three C1-8-alkyls, and C1-20-alkyls capable

of including one or two non-neighboring methylene groups which can

be replaced with -O-, -S-, -CO-, -CO-O-, -O-CO-, -CH=CH-, -C.tpbond.C- and capable of including a hydrogen atom which can be replaced with a fluorine atom; with the proviso that a sum of nitrogen atom and sulfur atom present in ring structures of CyN and CyC is at least 2). The object of the present invention is to

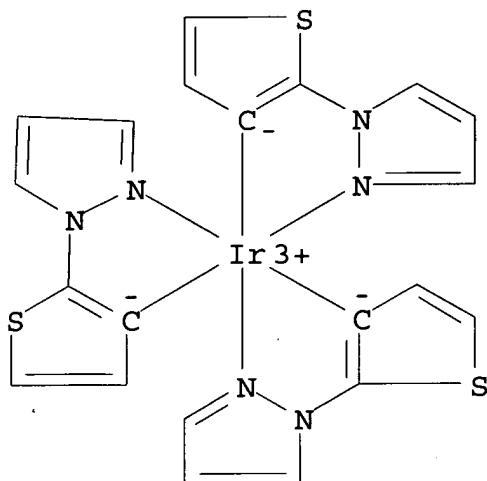
provide an **electroluminescence** device capable of providing a high-efficiency **luminescent** state at a high brightness (or **luminance**) for a long period while minimizing the deterioration in **luminescence** in energized state. Another object of the present invention is to provide a display apparatus including the **luminescence** device.

IT 405289-72-7

(**electroluminescent** display device comprising iridium coordination compound)

RN 405289-72-7 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)-3-thienyl- κ C] - (9CI) (CA INDEX NAME)



IC ICM H01L051-20
 ICS H05B033-14; C09K011-06
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 73
 ST **electroluminescent display iridium coordination compd**
 high brightness efficiency
 IT Dipole moment
 Electroluminescent devices
 Luminescence, electroluminescence
 (b) **electroluminescent display device comprising iridium**
 coordination compound
 IT 405289-64-7 405289-65-8 405289-66-9 405289-67-0
 405289-68-1 405289-69-2 405289-70-5 405289-71-6
 405289-72-7 405518-89-0
 (b) **electroluminescent display device comprising iridium**
 coordination compound
 IT 405289-73-8P 405289-74-9P 405289-75-0P 405289-76-1P
 405289-77-2P
 (b) **electroluminescent display device comprising iridium**
 coordination compound

L16 ANSWER 24 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:221136 HCPLUS

DOCUMENT NUMBER: 136:254380

TITLE: Organometallic complexes as
 phosphorescent emitters in
 organic LEDs

INVENTOR(S): Thompson, Mark E.; Djurovich, Peter;
 Lamansky,

Sergey; Murphy, Drew; Kwong, Raymond;
Abdel-Razzaq, Feras; Forrest, Stephen R.;
Baldo, Marc A.; Burrows, Paul E.
The Trustees of Princeton University, USA;
The
PATENT ASSIGNEE(S) :
The
SOURCE: University of Southern California
U.S. Pat. Appl. Publ., 77 pp., Cont.-in-part
of U. S. Ser. No. 274,609, abandoned.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE				
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	US 2002034656	A1	20020321	US 2001-883734
2001				
0618				
	US 6830828	B2	20041214	
	US 6097147	A	20000801	US 1998-153144
1998				
0914				
	US 2003017361	A1	20030123	US 2002-171235
2002				
0613				
	US 2004262576	A1	20041230	US 2004-870788
2004				
0616				
PRIORITY APPLN. INFO.:				US 1998-153144 A2
1998				
0914				
				US 1999-274609 B2
1999				

0323

US 1999-311126 B2

1999

0513

US 1999-452346 B2

1999

1201

US 2001-883734 A3

2001

0618

US 2002-171235 A3

2002

0613

OTHER SOURCE(S) : MARPAT 136:254380

AB Emissive layers of organic **light-emitting** devices are described which comprise a **phosphorescent** organometallic compound for enhancing the quantum efficiency of the organic **light-emitting** device. Preferably the emissive mol. is selected from the group of **phosphorescent** organometallic complexes, including cyclometallated platinum, iridium, and osmium complexes. The organic **light-emitting** devices optionally contain an exciton blocking layer. In particular, organic **light-emitting** devices with an **emitter** layer comprising organometallic complexes of transition metals of formula L₂MX, wherein L and X are distinct bidentate ligandss and M is a metal which forms octahedral complexes, are described. A method of making a composition of the formula L₂MX is described which entails combining a bridged dimer of formula L₂M(μ-Cl)₂ML₂ with a Bronsted acid XH to make the desired organometallic complex. Display devices incorporating

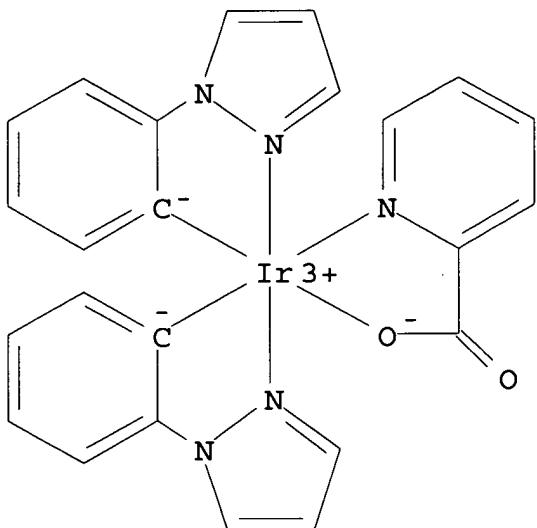
the light-emitting devices are also described.

IT 343978-88-1P

(organometallic complexes and their preparation and organic
light-emitting devices using them as
phosphorescent emitters)

RN 343978-88-1 HCPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] (2-
pyridinecarboxylato- κ N1, κ O2)-, (OC-6-42)- (9CI) (CA
INDEX NAME)

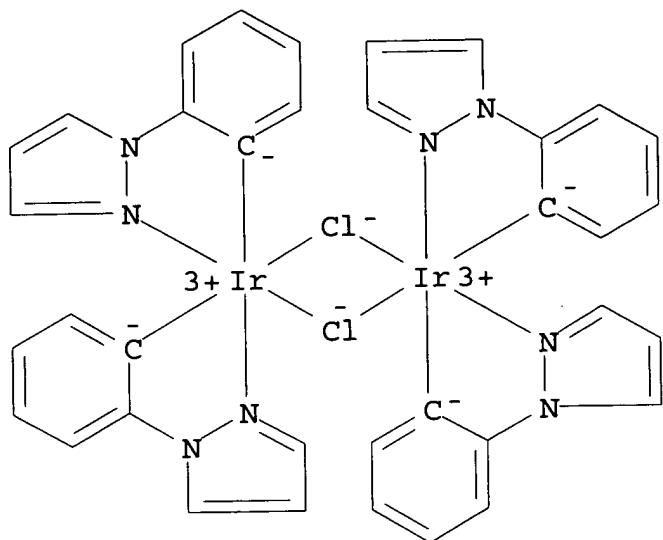


IT 57175-14-1P

(organometallic complexes and their preparation and organic
light-emitting devices using them as
phosphorescent emitters)

RN 57175-14-1 HCPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-,
stereoisomer (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 ICS C09K011-06
 NCL 428690000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74, 76, 78
 ST organometallic compd **phosphorescent emitter**
 org **light emitting device**
 IT **Electroluminescent devices**
 (organic; organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)
 IT **Phosphorescent substances**
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)
 IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5,
 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 7440-04-2D,
 Osmium, compds. with organic ligands 9003-53-6, Polystyrene
 25067-59-8, Polyvinylcarbazole 57102-62-2D, derivs.
 58328-31-7
 58328-31-7D, derivs. 88821-71-0 94928-86-6,
 fac-Tris(2-phenylpyridine)iridium 123847-85-8,
 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 180971-61-3
 212385-75-6D, derivs. 344406-74-2D, derivs.
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as

phosphorescent emitters)

IT 337526-86-0P 337526-88-2P 337526-89-3P 337526-98-4P
 343978-86-9P 343978-88-1P 343978-92-7P 343978-96-1P
 343978-99-4P 344426-19-3P
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)

IT 110077-26-4P 138736-22-8P 337526-85-9P 337526-87-1P
 337526-91-7P 343978-75-6P 343978-76-7P 343978-77-8P
 343978-78-9P 343978-79-0P
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)

IT 86-55-5, 1-Naphthoic acid 91-22-5, Quinoline, reactions
 95-55-6, 2-Aminophenol 98-98-6, Picolinic acid 108-86-1,
 Bromobenzene, reactions 110-02-1, Thiophene 110-86-1,
 Pyridine, reactions 123-54-6, Acetylacetone, reactions
 148-24-3, 8-Hydroxyquinoline, reactions 302-01-2, Hydrazine,
 reactions 352-93-2, Diethyl sulfide 372-48-5,

2-Fluoropyridine
 602-09-5, 2,2'-Dihydroxy-1,1'-binaphthyl 615-36-1 1126-00-7,
 1-Phenylpyrazole 3117-65-5 4467-06-5, 2-(p-Tolyl)pyridine
 7726-95-6, Bromine, reactions 7758-02-3, Potassium bromide,
 reactions 10025-83-9, Iridium trichloride 10025-99-7,
 Potassium tetrachloroplatinate 15635-87-7 38215-36-0
 53698-49-0, 3-Methoxy-2-phenylpyridine 343978-74-5
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)

IT 1008-89-5P, 2-Phenylpyridine 1454-80-4P, 2,2'-Diaminobiphenyl
 2436-96-6P, 2,2'-Dinitrobiphenyl 3164-18-9P,
 2-(1-Naphthyl)benzoxazole 3319-99-1P, 2-(2-Thienyl)pyridine
 13029-09-9P, 2,2'-Dibromobiphenyl 34243-33-9P
 57175-14-1P 74866-28-7P, 2,2'-Dibromo-1,1'-binaphthyl
 109306-86-7P 116563-45-2P 343978-82-5P 343978-90-5P
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)

IT 15337-84-5P 15442-57-6P, cis-Dichlorobis-(diethyl
 sulfide)platinum 128025-34-3P
 (organometallic complexes and their preparation and organic
 light-emitting devices using them as
 phosphorescent emitters)

L16 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:143099 HCAPLUS
 DOCUMENT NUMBER: 136:191506

TITLE: Organometallic compounds and
 emission-shifting
 INVENTOR(S): Lamansky, Sergey; Thompson, Mark E.;
 Adamovich, Vadim; Djurovich, Peter L.;
 Adachi, Chihaya; Baldo, Marc A.; Forrest, Stephen R.;
 Kwong, Raymond C.
 PATENT ASSIGNEE(S): The Trustees of Princeton University, USA;
 The
 SOURCE: University of Southern California; Universal
 Display Corporation
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----	-----
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	WO 2002015645	A1	20020221	WO 2001-US25108

2001

0810

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
 MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
 SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,
 CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
 MR, NE, SN, TD, TG

AU 2001083274	A5	20020225	AU 2001-83274
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2001

0810

EP 1325671	A1	20030709	EP 2001-962061
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2001

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2004506305 T2 20040226 JP 2002-519380

2001

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TW 593625 B 20040621 TW 2001-90119946

2001

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PRIORITY APPLN. INFO.: US 2000-637766 A

2000

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US 2001-283814P P

2001

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WO 2001-US25108 W

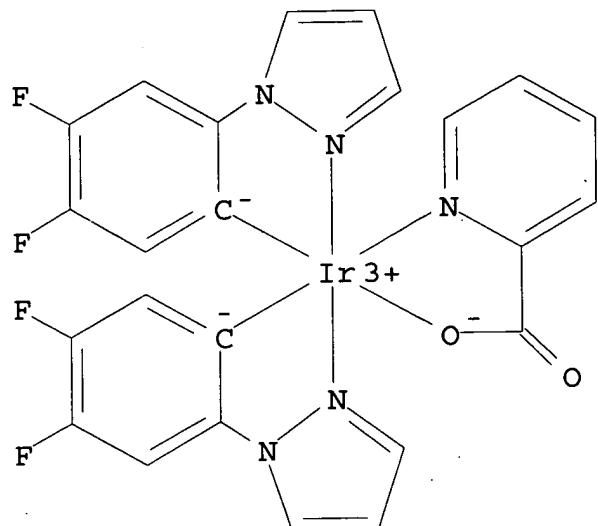
2001

0810

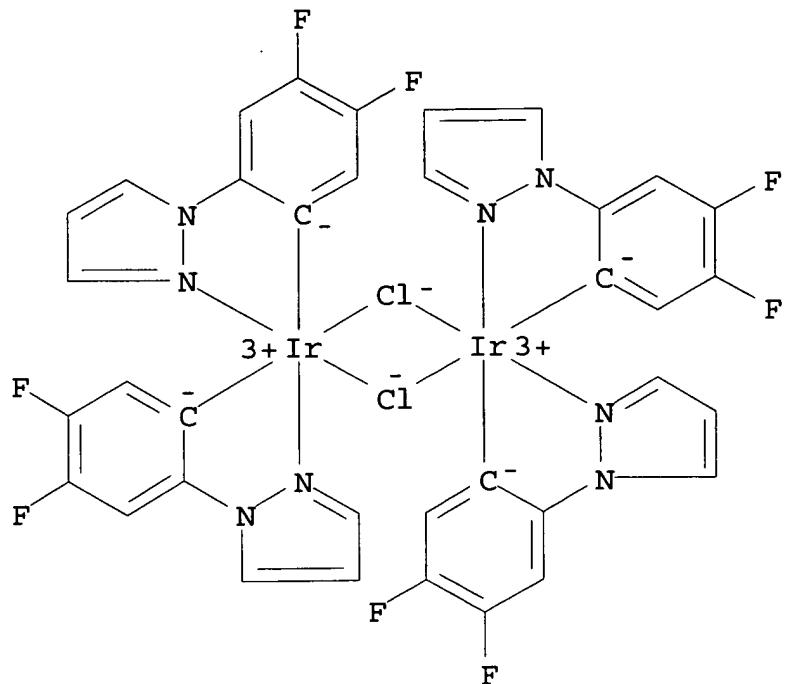
AB Organic **light-emitting** devices including an emissive layer comprising an organometallic compound are described in which the organometallic compound comprises a heavy transition metal (e.g., Os, Ir, Pt, or Au) that produces an efficient **phosphorescent** emission at room temperature from a mixture of metal-to-ligand charge transfer and π - π^* ligand states; ≥ 1 mono-anionic bidentate carbon-coordination ligand bound to the heavy transition metal, the ligand(s) being substituted with an electron-donating substituent and/or an electron-withdrawing substituent which shifts the emission, relative to the unsubstituted ligand, to either the blue, green, or red region of the visible spectrum; and ≥ 1 non-monoanionic bidentate carbon-coordination ligand bound to the heavy transition metal which ligand(s) causes the emission to have

are a well defined vibronic structure. The organometallic compds. also claimed.

IT **400654-01-5P**
 (organic light-emitting devices using emission shifting organometallic complexes and the complexes)
 RN 400654-01-5 HCAPLUS
 CN Iridium, bis[4,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] (2-pyridinecarboxylato- κ N1, κ O2) - (9CI) (CA INDEX NAME)



IT **400654-00-4P**
 (organic light-emitting devices using emission shifting organometallic complexes and the complexes)
 RN 400654-00-4 HCAPLUS
 CN Iridium, di- μ -chlorotetrakis[4,5-difluoro-2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C]di- (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 ICS C09K011-06; C07D213-02; C07D231-10; C07D241-10; C07D333-52
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76, 78
 ST org light emitting device emission shifting
 organometallic complex
 IT Luminescent substances
 Phosphorescent substances
 (organic light-emitting devices using emission
 shifting organometallic complexes and the complexes)
 IT Electroluminescent devices
 (organic; organic light-emitting devices using
 emission shifting organometallic complexes and the complexes)
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, Bathocuproine 31248-39-2 50926-11-9, Indium tin oxide 58328-31-7, 4,4'-N,N'-Dicarbazolylbiphenyl 65181-78-4, TPD 94928-86-6, fac-Tris(2-phenylpyridine)iridium 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 146162-54-1
 (organic light-emitting devices using emission
 shifting organometallic complexes and the complexes)
 IT 40243-13-8P 345659-08-7P 376367-93-0P 376367-95-2P
 391665-84-2P 400653-85-2P 400653-86-3P 400653-87-4P

400653-88-5P 400653-89-6P 400653-90-9P 400653-91-0P
 400653-92-1P 400653-93-2P 400653-94-3P 400653-95-4P
 400653-96-5P 400653-97-6P 400653-98-7P **400654-01-5P**
 400654-02-6P 400654-04-8P 400654-05-9P 400654-06-0P
 400654-08-2P 400654-10-6P 400654-12-8P 400654-13-9P
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 88821-71-0 125051-45-8 400654-15-1 400655-42-7
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 56-40-6, Glycine, reactions 98-97-5, Pyrazinecarboxylic acid
 98-98-6, Picolinic acid 109-04-6, 2-Bromopyridine 110-86-1,
 Pyridine, reactions 123-54-6, 2,4-Pentadione, reactions
 151-50-8, Potassium cyanide 366-18-7, 2,2'-Bipyridine
 540-72-7, Sodium thiocyanide 603-35-0, Triphenylphosphine,
 reactions 939-23-1, 4-Phenylpyridine 1663-45-2,
 1,2-Bis(diphenylphosphino)ethane 7188-38-7,
 tert-Butylisocyanide
 10025-83-9, Iridium trichloride 15635-87-7, Iridium
 tris(acetylacetone) 18583-60-3, Potassium
 tris(pyrazolyl)borate 40243-18-3 99646-28-3 125081-56-3
 144025-03-6, 2,4-Difluorophenylboronic acid 155475-93-7
 158333-96-1 400653-99-8 400654-03-7 400654-07-1
 400654-09-3 400654-11-7 400654-14-0
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)
 IT 391604-55-0P 391611-77-1P **400654-00-4P**
 (organic **light-emitting** devices using emission
 shifting organometallic complexes and the complexes)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS

AVAILABLE

IN THE RE FORMAT

L16 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:658045 HCAPLUS
 DOCUMENT NUMBER: 135:233635
 TITLE: **Light-emitting** material
 comprising orthometalated iridium complex,
light-emitting device, high
 efficiency red **light-emitting** device, and novel iridium
 complex
 INVENTOR(S): Igarashi, Tatsuya; Kimura, Keizo; Nii, Kazumi
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 37 pp.
 CODEN: USXXCO

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	
DATE					
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	US 2001019782	A1	20010906	US 2000-747933	
2000					
1227					
	US 6821645	B2	20041123		
	JP 2001247859	A2	20010914	JP 2000-299495	
2000					
0929					
	JP 2001345183	A2	20011214	JP 2000-298470	
2000					
0929					
	US 2005003233	A1	20050106	US 2004-844394	
2004					
0513					
PRIORITY APPLN. INFO.:				JP 1999-370349	A
1999					
1227					
				JP 2000-89274	A
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0328					
				JP 2000-298470	A
2000					
0929					

JP 2000-299495

A

2000

0929

US 2000-747933

A3

2000

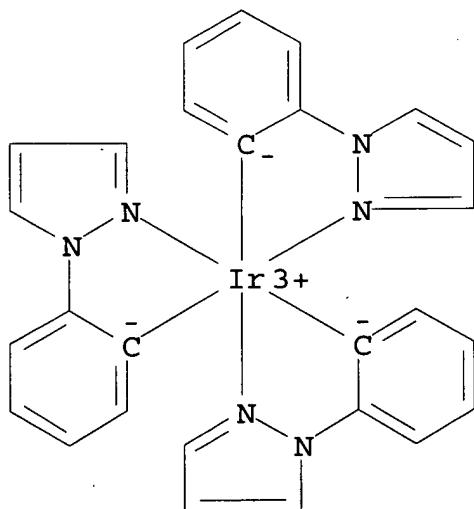
1227

OTHER SOURCE(S) : MARPAT 135:233635

AB **Light-emitting** materials comprising orthometalated iridium complexes with ≥ 1 ligand comprising a nitrogen-containing heterocyclic derivs., and the complexes, are described. **Electroluminescent** devices employing the complexes are also described.

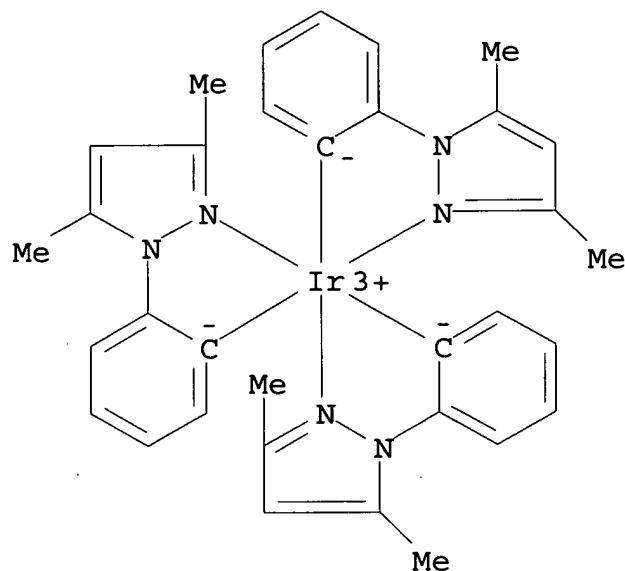
IT 359014-72-5 359014-73-6 359014-74-7
(**light-emitting** materials comprising orthometalated iridium complexes and **light-emitting** devices using them and iridium complexes)

RN 359014-72-5 HCPLUS

CN Iridium, tris[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] - (9CI)
(CA INDEX NAME)

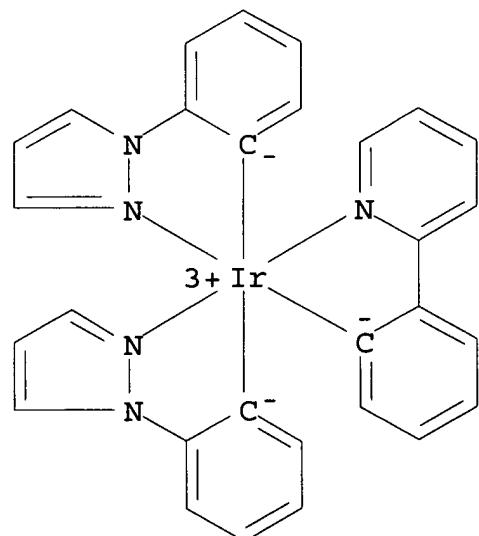
RN 359014-73-6 HCPLUS

CN Iridium, tris[2-(3,5-dimethyl-1H-pyrazol-1-yl- κ N2)phenyl- κ C]- (9CI) (CA INDEX NAME)



RN 359014-74-7 HCAPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] [2-(2-pyridinyl- κ N)phenyl- κ C]- (9CI) (CA INDEX NAME)



IC H05B003-312; C07F015-00; C07D213-02; C07D221-02; C07D247-00;

NCL C07D009-04
 NCL 428690000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76, 78
 ST luminescent material orthometalated iridium complex;
 electroluminescent device orthometalated iridium complex
 IT Electroluminescent devices
 Luminescent substances
 (light-emitting materials comprising
 orthometalated iridium complexes and light-
 emitting devices using them and iridium complexes)
 IT 7429-90-5, Aluminum, uses 15082-28-7 25067-59-8,
 Poly(N-vinylcarbazole) 37271-44-6 50926-11-9, ITO
 52352-02-0
 58328-31-7 94928-86-6 123847-85-8, α -NPD 153838-48-3
 343978-78-9 358974-63-7 358974-66-0 359014-71-4
359014-72-5 359014-73-6 359014-74-7
 359014-75-8 359014-77-0 359014-78-1 359014-79-2
 (light-emitting materials comprising
 orthometalated iridium complexes and light-
 emitting devices using them and iridium complexes)
 IT 359014-63-4P 359014-64-5P 359014-69-0P
 (light-emitting materials comprising
 orthometalated iridium complexes and light-
 emitting devices using them and iridium complexes)
 IT 337526-95-1P 359014-65-6P 359014-66-7P 359014-67-8P
 359014-68-9P 359014-70-3P 359014-76-9P
 (light-emitting materials comprising
 orthometalated iridium complexes and light-
 emitting devices using them and iridium complexes)
 IT 101-82-6, 2-Benzylpyridine 123-54-6, Acetylacetone, reactions
 612-96-4, 2-Phenylquinoline 630-08-0, Carbon monoxide,
 reactions
 1008-89-5, 2-Phenylpyridine 10025-83-9, Iridium trichloride
 16920-56-2 20375-65-9 24702-41-8 47077-29-2
 (light-emitting materials comprising
 orthometalated iridium complexes and light-
 emitting devices using them and iridium complexes)
 IT 50851-57-5
 (polyethylene dioxythiophene doped with; light-
 emitting materials comprising orthometalated iridium
 complexes and light-emitting devices using
 them and iridium complexes)
 IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)
 (polystyrene sulfonate-doped; light-emitting
 materials comprising orthometalated iridium complexes and

light-emitting devices using them and iridium complexes)

L16 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:417332 HCAPLUS
 DOCUMENT NUMBER: 135:53380
 TITLE: Complexes of form L2MX as phosphorescent dopants for organic LEDs
 INVENTOR(S): Thompson, Mark E.; Djurovich, Peter;
 Lamansky, Sergey; Murphy, Drew; Kwong, Raymond;
 Abdel-Razzaq, Feras; Forrest, Stephen R.;
 Baldo, Marc A.; Burrows, Paul E.
 PATENT ASSIGNEE(S): Trustees of Princeton University, USA;
 University of Southern California
 SOURCE: PCT Int. Appl., 88 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 5
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.
DATE	-----	-----	-----
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WO 2001041512	A1	20010607	WO 2000-US32511

2000

1129

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD,
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
 KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
 TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,
 CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR,
 NE, SN, TD, TG

EP 1252803	A1	20021030	EP 2000-980863
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2000

1129

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2003515897 T2 20030507 JP 2001-541304

2000

1129

TW 581762 B 20040401 TW 2000-89125494

2000

1130

PRIORITY APPLN. INFO.: US 1999-452346 A

1999

1201

WO 2000-US32511 W

2000

1129

OTHER SOURCE(S): MARPAT 135:53380

AB Organic **light-emitting** devices are described in which an **emitter** layer comprises compds. (e.g., as dopants within a host) which are described by the general formula L₂MX (L and X are inequivalent bidentate ligands; and M is a metal

which forms octahedral complexes). Devices with **emitter** layers comprising **phosphorescent** compds. described by the general formula LL'L" M (L, L', and L" = inequivalent bidentate ligands) and comprising L'''2M (L''' = a monoanionic bidentate ligand coordinated to M through an sp² carbon and a heteroatom; and wherein the heteroatoms of the two L ligands are in a trans configuration) are also described. The preparation of L₂MX

by combining a bridged dimer described by the general formula L₂M(μ-Cl)₂ML₂ with a Bronsted acid XH to make an organometallic complex of formula LMX is also described. Synthetic options allow

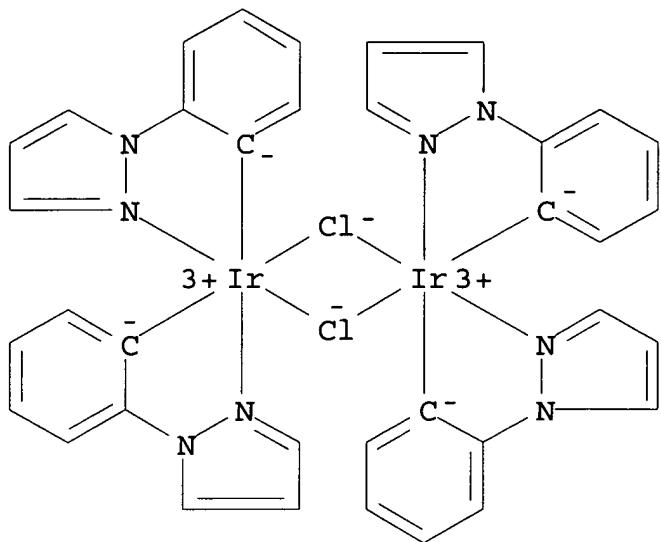
insertion of **fluorescent** mols. into a **phosphorescent** complex, ligands to fine tune the color of emission, and ligands to trap carriers. 3-Methoxy-2-phenylpyridine.

IT 57175-14-1P 343978-88-1P

(phosphorescent cyclometallated complex dopants for organic light-emitting devices and their preparation)

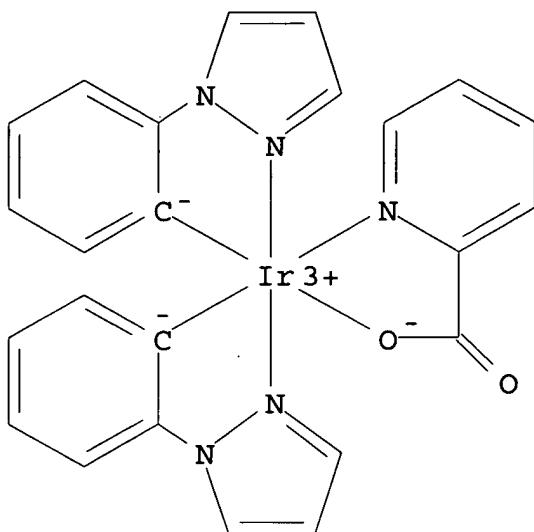
RN 57175-14-1 HCAPLUS

CN Iridium, di- μ -chlorotetrakis[2-(1H-pyrazol-1-yl)phenyl]di-, stereoisomer (9CI) (CA INDEX NAME)



RN 343978-88-1 HCAPLUS

CN Iridium, bis[2-(1H-pyrazol-1-yl- κ N2)phenyl- κ C] (2-pyridinecarboxylato- κ N1, κ O2) -, (OC-6-42) - (9CI) (CA INDEX NAME)



IC ICM H05B033-14
 ICS C07D213-02; C07D215-02; C07D231-12; C07D263-57; C07D277-66;
 C07D333-50; C07D409-04; C07D417-04

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 29, 74, 76, 78

ST **phosphorescent cyclometallated complex dopant** org
light emitting device; **iridium complex dopant**
org light emitting device; **osmium complex**
dopant org **light emitting device**; **platinum**
complex dopant org **light emitting device**

IT **Phosphors**
 (**electroluminescent**; **phosphorescent**
cyclometallated complex dopants for organic light-
emitting devices and their preparation)

IT **Electroluminescent devices**
 (**organic**; **phosphorescent cyclometallated complex dopants**
for organic light-emitting devices and their
preparation)

IT **Fluorescent substances**
Phosphorescent substances
 (**phosphorescent cyclometallated complex dopants for**
organic light-emitting devices and their
preparation)

IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5,
 Bathocuproine 7440-04-2D, Osmium, compds. with organic ligands,
 uses 7440-06-4D, Platinum, compds. with organic ligands, uses
 37271-44-6 50926-11-9, Indium tin oxide 57102-62-2D, derivs.

58328-31-7 58328-31-7D, derivs. 212385-75-6D, derivs.
344406-74-2D, derivs.

(phosphorescent cyclometallated complex dopants for
organic light-emitting devices and their
preparation)

IT 57175-14-1P 337526-85-9P 337526-86-0P 337526-87-1P
337526-88-2P 337526-89-3P 337526-91-7P 337526-98-4P
343978-74-5P 343978-75-6P 343978-76-7P 343978-77-8P
343978-78-9P 343978-79-0P 343978-82-5P 343978-86-9P
343978-88-1P 343978-92-7P 343978-94-9P 343978-96-1P
343978-99-4P 344426-19-3P

(phosphorescent cyclometallated complex dopants for
organic light-emitting devices and their
preparation)

IT 86-55-5, 1-Naphthoic acid 95-55-6, 2-Aminophenol 98-98-6,
Picolinic acid 123-54-6, Acetylacetone, reactions 148-24-3,
8-Hydroxyquinoline, reactions 230-27-3, 7,8-Benzoquinoline
1126-00-7, 1-Phenylpyrazole 1522-22-1, Hexafluoroacetylacetone
3117-65-5 4467-06-5, 2-(p-Tolyl)pyridine 10025-83-9, Iridium
trichloride 15635-87-7, Iridium trisacetylacetone
53698-49-0, 3-Methoxy-2-phenylpyridine 70546-18-8 116563-45-2
337526-80-4 338387-34-1 338387-84-1 343978-71-2
343978-72-3 343978-73-4

(phosphorescent cyclometallated complex dopants for
organic light-emitting devices and their
preparation)

IT 3164-18-9P, 2-(1-Naphthyl)benzoxazole 343978-90-5P
(phosphorescent cyclometallated complex dopants for
organic light-emitting devices and their
preparation)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS
AVAILABLE

IN THE RE FORMAT

L16 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:237418 HCAPLUS

DOCUMENT NUMBER: 114:237418

TITLE: Excited-state annihilation process involving
a

cyclometalated platinum(II) complex

AUTHOR(S): Maestri, Mauro; Sandrini, Diana; Von
Zelewsky,

Alex; Deuschel-Cornioley, Christine

CORPORATE SOURCE: Dep. Chem., Univ. Bologna, Bologna, Italy

SOURCE: Inorganic Chemistry (1991), 30(11), 2476-8

CODEN: INOCAJ; ISSN: 0020-1669

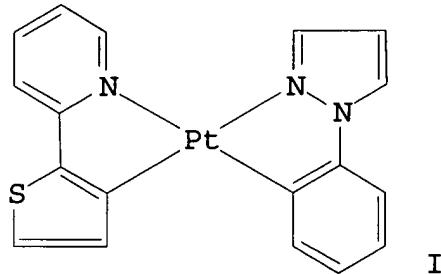
DOCUMENT TYPE:

Journal

LANGUAGE:

English

GI



AB The Pt complex I exhibits strong **luminescence** with a relatively long excited-state lifetime ($15.3 \mu\text{s}$) in deaerated acetonitrile solution, at room temperature and at low excitation intensity,

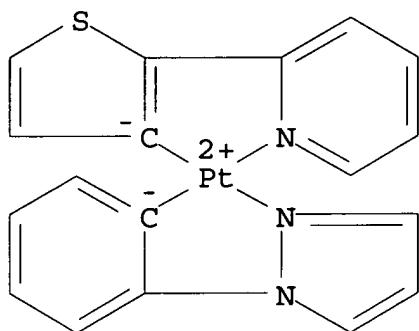
and can be easily involved in excited-state quenching processes. The 3CT excited state is, in fact, quenched (1) by oxygen ($k_q = 109 \text{ M}^{-1} \text{ s}^{-1}$), (2) by the ground-state complex ($k_q = 5.7 + 107 \text{ M}^{-1} \text{ s}^{-1}$), and (3) by another 3CT excited state in an annihilation process, which is practically diffusion controlled ($k_3 > 6 + 109 \text{ M}^{-1} \text{ s}^{-1}$). The ground-state quenching and the annihilation process most probably occur via an excimer formation mechanism.

IT 122658-63-3

(photochem. and photophys. properties of, excited-state annihilation process in)

RN 122658-63-3 HCAPLUS

CN Platinum, [2-(1H-pyrazol-1-yl)phenyl][2-(2-pyridinyl)-3-thienyl-C3,N2]-, (SP-4-3)- (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 73

ST platinum cyclometalated complex excited state annihilation; quenching kinetics excited platinum cyclometalated complex; photolysis platinum cyclometalated complex photophys; excimer platinum cyclometalated complex luminescence quenching

IT Luminescence quenching
 (of cyclometalated platinum(II) complex)

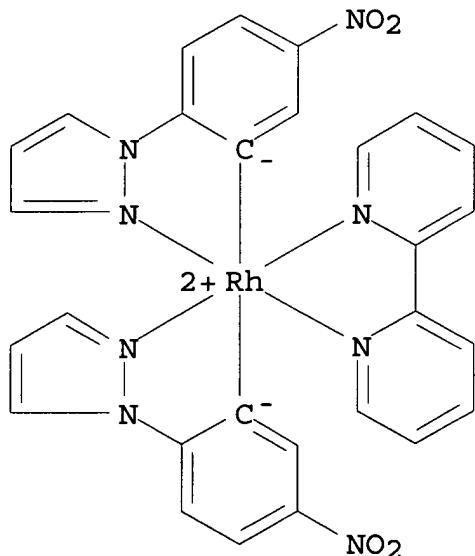
IT 122658-63-3
 (photochem. and photophys. properties of, excited-state annihilation process in)

L16 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:580107 HCAPLUS
 DOCUMENT NUMBER: 113:180107
 TITLE: Spectroscopic and electrochemical behavior of new mixed-ligand cyclometalated rhodium(III) complexes
 AUTHOR(S): Sandrini, Diana; Maestri, Mauro; Ciano, Mauro;
 Maeder, Urs; Von Zelewsky, Alex
 CORPORATE SOURCE: Dip. Chim. 'G. Ciamician', Univ. Bologna, Bologna, I-40126, Italy
 SOURCE: Helvetica Chimica Acta (1990), 73(5), 1306-13
 CODEN: HCACAV; ISSN: 0018-019X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The absorption spectra, luminescence spectra, excited-state lifetimes, and electrochem. behavior of the cyclometalated $[\text{Rh}(\text{ppz})_2\text{bpy}]^+$, $[\text{Rh}(3\text{-Cl-ppz})_2(\text{bpy})]^+$, $[\text{Rh}(4\text{-NO}_2\text{-ppz})_2(\text{bpy})]^+$, $[\text{Rh}(\text{ppz})_2(\text{biq})]^+$, and $[\text{Rh}(4\text{-NO}_2\text{-ppz})_2(\text{biq})]^+$ complexes (ppz-, 3-Cl-ppz-, and 4-NO₂-ppz- are the ortho-C-deprotonated forms of 1-phenylpyrazole,

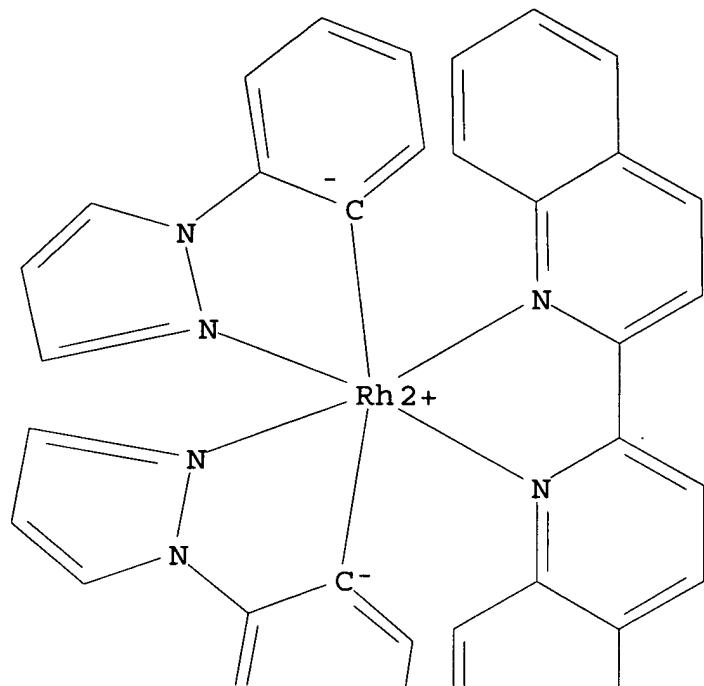
1-(3-chlorophenyl)pyrazole and 1-(4-nitrophenyl)pyrazole, resp.) have been investigated. The results obtained have been compared with those concerning the free protonated ligands and some previously studied mixed-ligand cyclometalated Rh(III) complexes. Luminescence originates from the lowest ligand-centered (LC) excited state, which involves the diimine ligands in all cases except for $[\text{Rh}(\text{4-NO}_2\text{-ppz})_2(\text{bpy})]_+$, where it involves the ortho-metalating ligands. In the absorption spectra, LC and metal-to-ligand charge-transfer (MLCT) bands, involving the diimine and/or the ortho-metalating ligands, have been assigned, and correlations between spectroscopic and electrochem. data are discussed.

IT 130102-41-9 130102-42-0 130102-43-1
 130102-44-2 130102-45-3 130102-46-4
 130102-47-5 130102-48-6 130102-49-7
 130102-50-0
 (elec. potential of redox couple containing)
 RN 130102-41-9 HCAPLUS
 CN Rhodium, (2,2'-bipyridine-N,N')bis[5-nitro-2-(1H-pyrazol-1-yl)phenyl] - (9CI) (CA INDEX NAME)



RN 130102-42-0 HCAPLUS
 CN Rhodium, (2,2'-biquinoline-N,N')bis[2-(1H-pyrazol-1-yl)phenyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



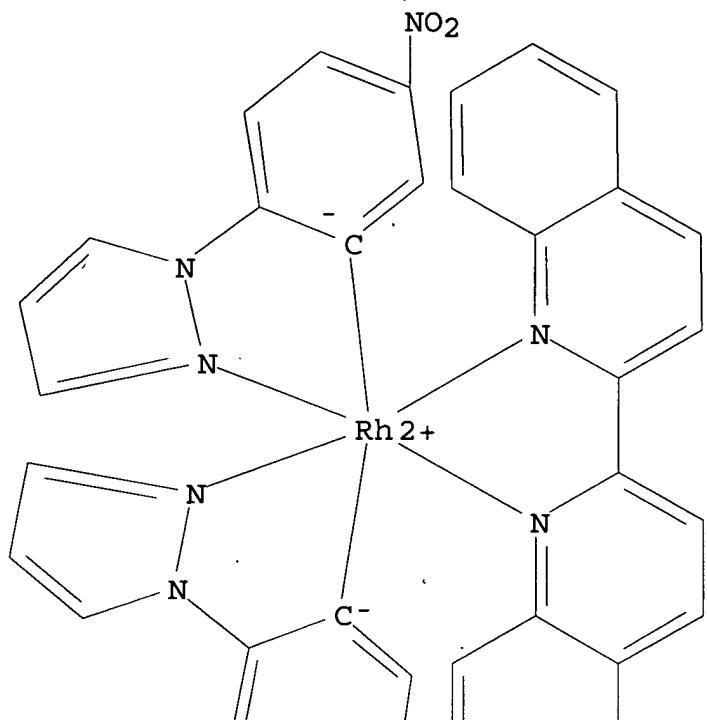
PAGE 2-A



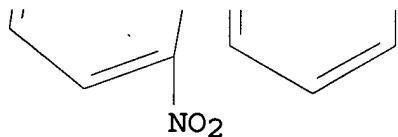
RN 130102-43-1 HCPLUS

CN Rhodium, (2,2'-biquinoline-N,N') [5-nitro-2-(1H-pyrazol-1-yl)phenyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



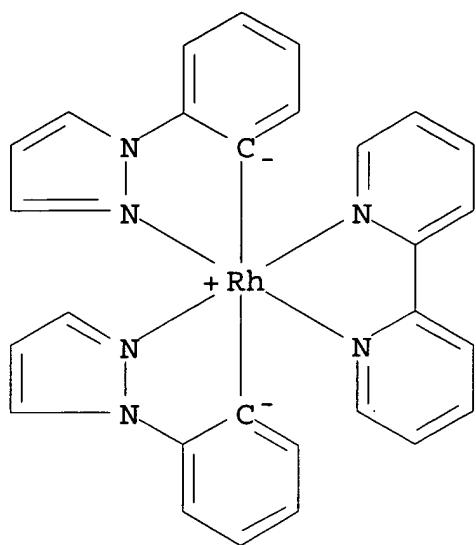
PAGE 2-A



RN 130102-44-2 HCPLUS

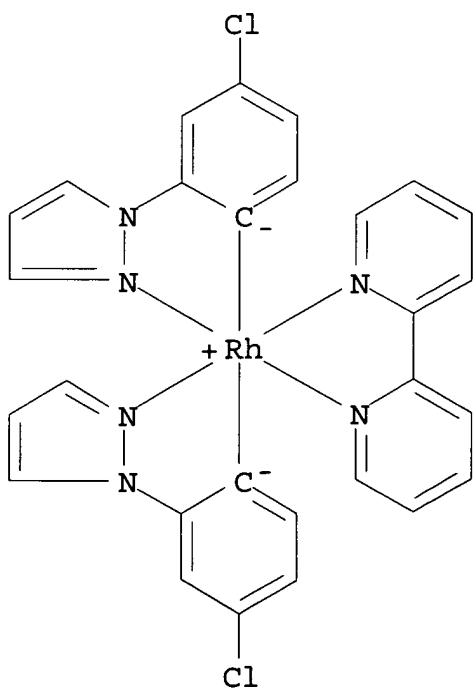
CN Rhodate(1-),

(2,2'-bipyridine-N,N')bis[2-(1H-pyrazol-1-yl)phenyl] -
(9CI) (CA INDEX NAME)



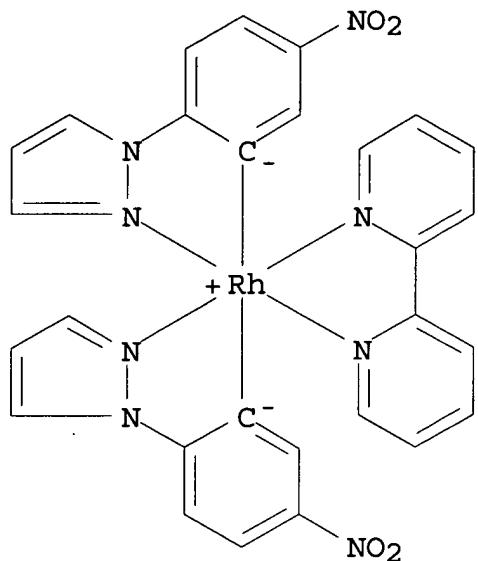
RN 130102-45-3 HCAPLUS

CN Rhodate(1-), (2,2'-bipyridine-N,N')bis[4-chloro-2-(1H-pyrazol-1-yl)phenyl]- (9CI) (CA INDEX NAME)



RN 130102-46-4 HCAPLUS

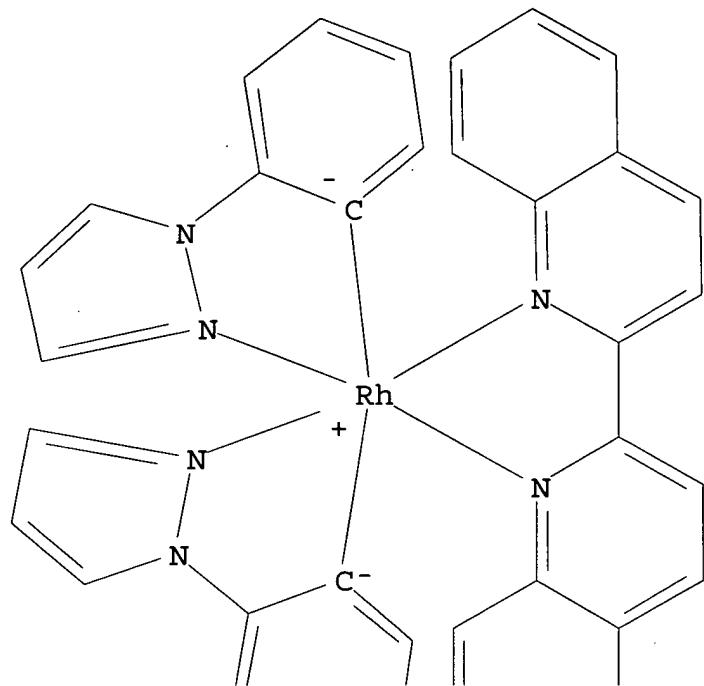
CN Rhodate(1-), (2,2'-bipyridine-N,N')bis[5-nitro-2-(1H-pyrazol-1-yl)phenyl]- (9CI) (CA INDEX NAME)



RN 130102-47-5 HCPLUS

CN Rhodate(1-),
(2,2'-biquinoline-N,N')bis[2-(1H-pyrazol-1-yl)phenyl]-
(9CI) (CA INDEX NAME)

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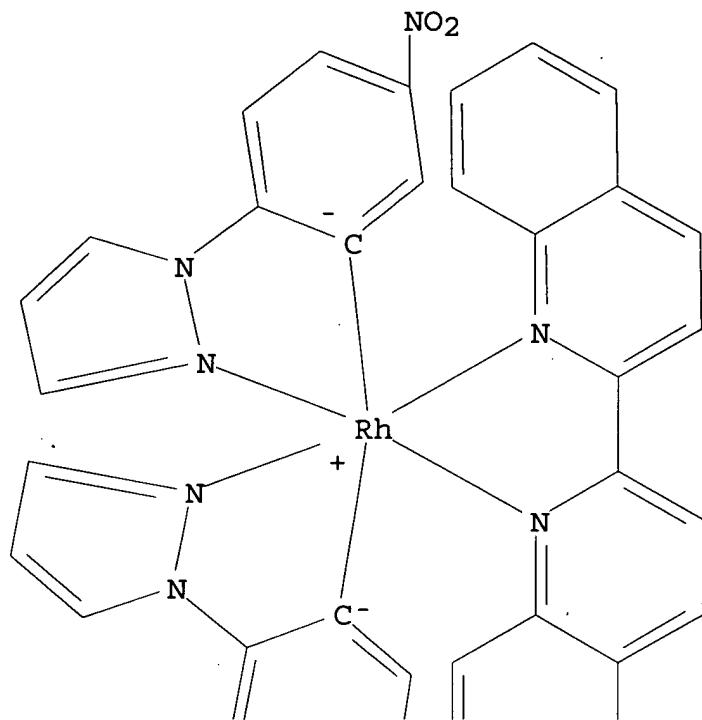
PAGE 2-A



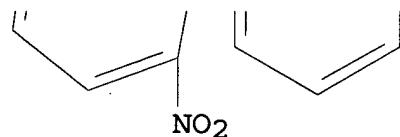
RN 130102-48-6 HCPLUS

CN Rhodate(1-) , (2,2'-biquinoline-N,N') [5-nitro-2-(1H-pyrazol-1-yl)phenyl] - (9CI) (CA INDEX NAME)

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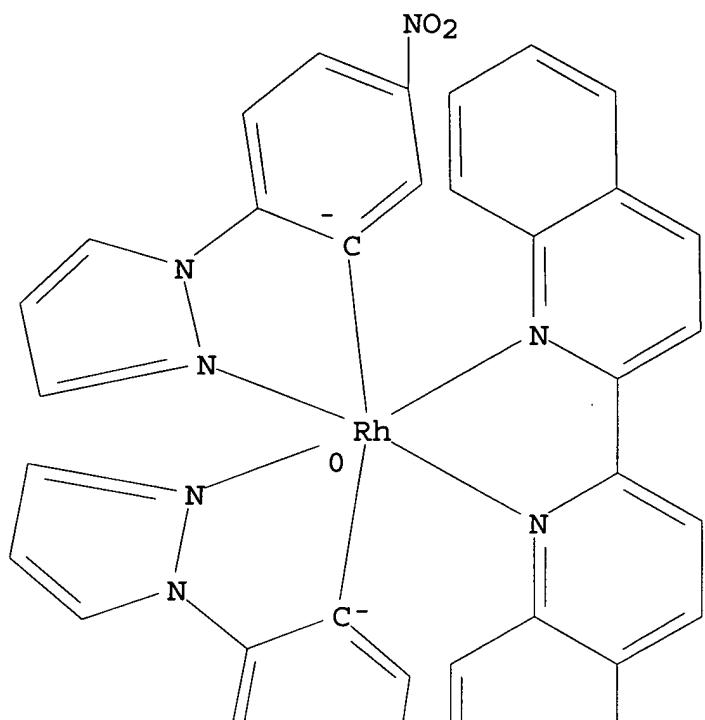
PAGE 2-A



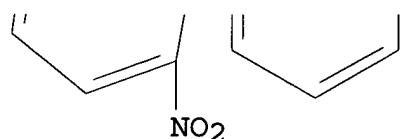
RN 130102-49-7 HCAPLUS

CN Rhodate(2-), (2,2'-biquinoline-N,N') [5-nitro-2-(1H-pyrazol-1-yl)phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

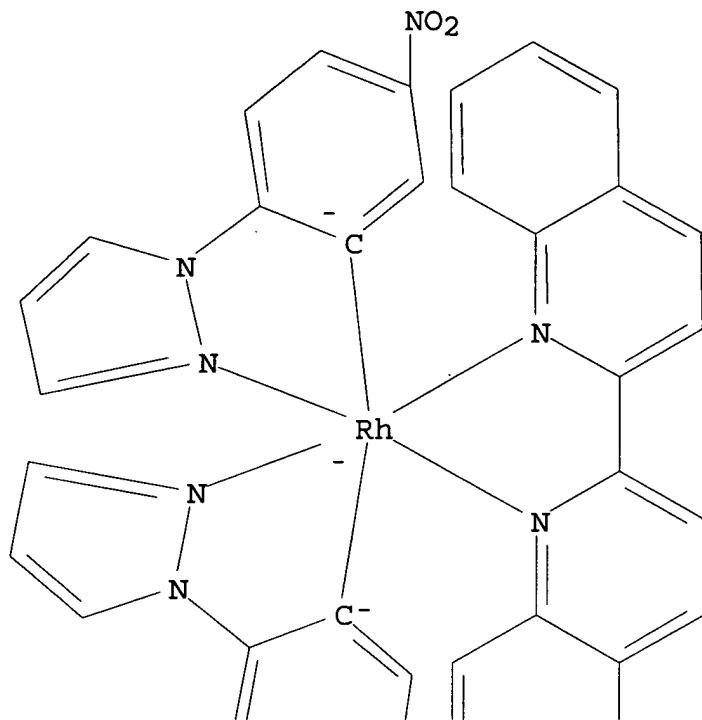


PAGE 2-A

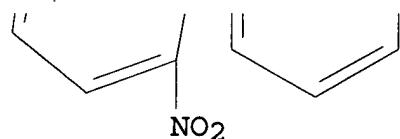


RN 130102-50-0 HCAPLUS
 CN Rhodate(3-) , (2,2'-biquinoline-N,N') [5-nitro-2-(1H-pyrazol-1-yl)phenyl] - (9CI) (CA INDEX NAME)

PAGE 1-A



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IT 130102-10-2 130102-11-3 130102-12-4

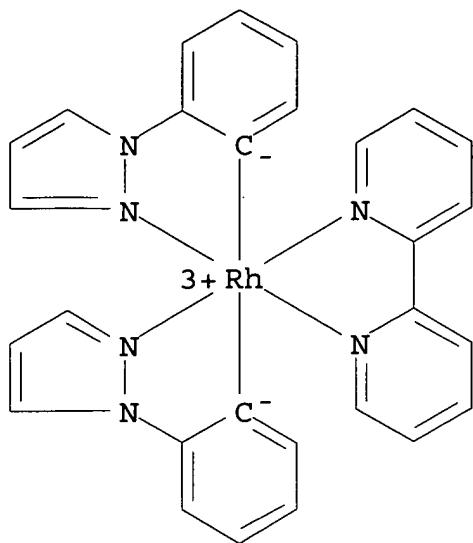
130102-13-5 130102-14-6

(redox. potential and optical absorption and
luminescence of)

RN 130102-10-2 HCPLUS

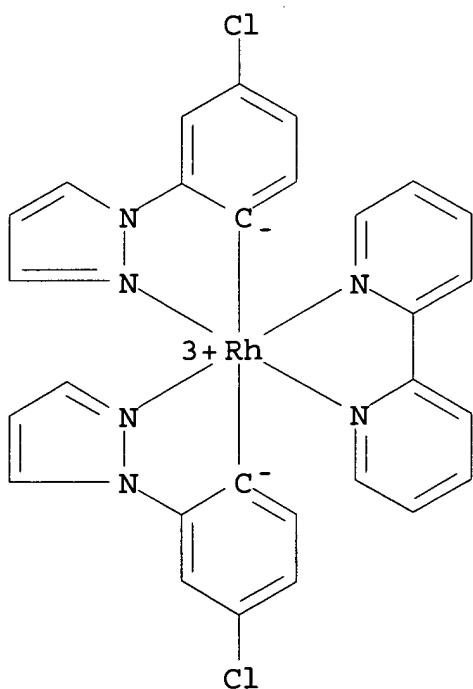
CN Rhodium(1+),

(2,2'-bipyridine-N,N')bis[2-(1H-pyrazol-1-yl)phenyl]-
, (OC-6-13)- (9CI) (CA INDEX NAME)



RN 130102-11-3 HCPLUS

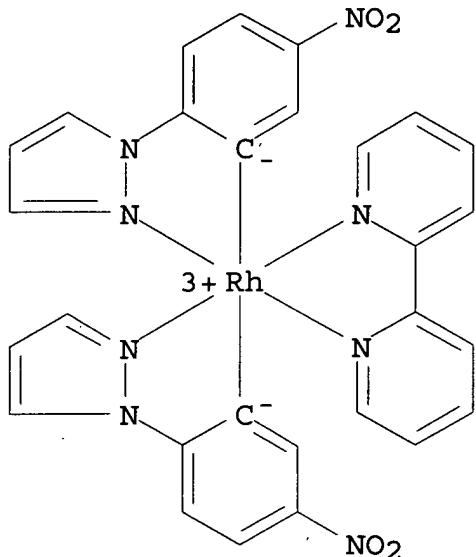
CN Rhodium(1+), (2,2'-bipyridine-N,N')bis[4-chloro-2-(1H-pyrazol-1-yl)phenyl]-, (OC-6-13)- (9CI) (CA INDEX NAME)



RN 130102-12-4 HCPLUS

CN Rhodium(1+), (2,2'-bipyridine-N,N')bis[5-nitro-2-(1H-pyrazol-1-

yl)phenyl] - , (OC-6-13) - (9CI) (CA INDEX NAME)

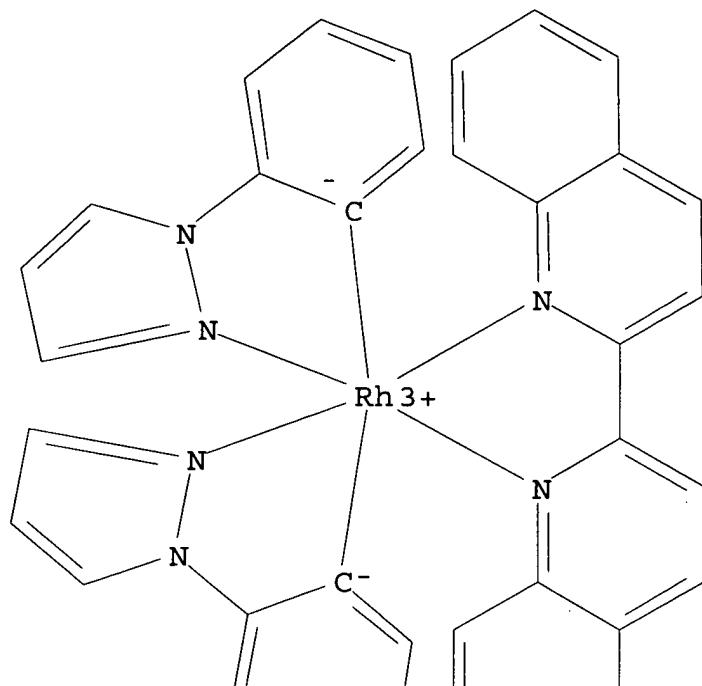


RN 130102-13-5 HCAPLUS

CN Rhodium(1+),

(2,2'-biquinoline-N,N')bis[2-(1H-pyrazol-1-yl)phenyl] -
, (OC-6-13) - (9CI) (CA INDEX NAME)

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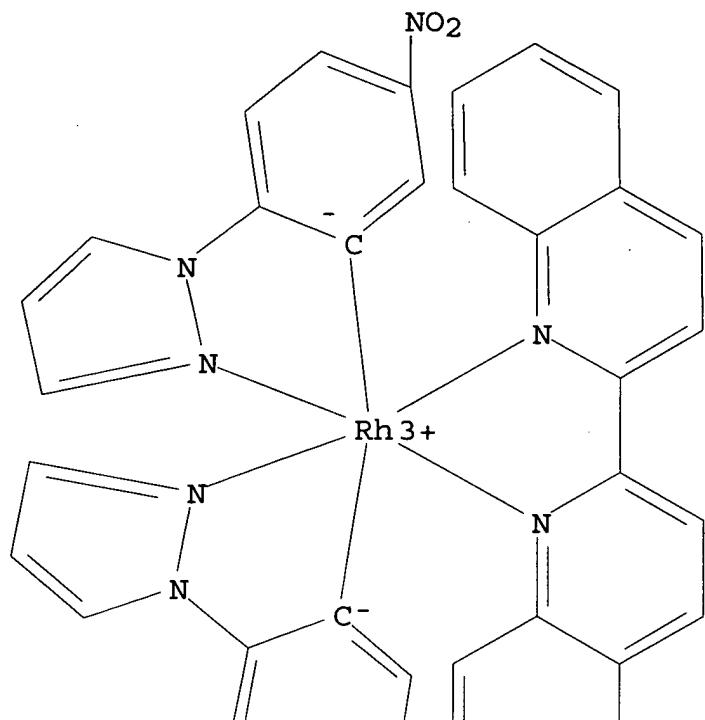
PAGE 2-A



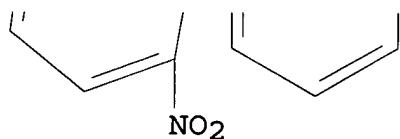
RN 130102-14-6 HCAPLUS

CN Rhodium(1+), (2,2'-biquinoline-N,N')bis[5-nitro-2-(1H-pyrazol-1-yl)phenyl]-, (OC-6-13)- (9CI) (CA INDEX NAME)

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CC 72-2 (Electrochemistry)

Section cross-reference(s) : 73

ST rhodium complex cyclometalated pyrazole deriv; elec potential
redn

oxidn complex; optical absorption luminescence complex

IT Luminescence

Oxidation, electrochemical

Reduction, electrochemical

Ultraviolet and visible spectra

(of cyclometalated rhodium complexes)

IT 130102-41-9 130102-42-0 130102-43-1
 130102-44-2 130102-45-3 130102-46-4
 130102-47-5 130102-48-6 130102-49-7
 130102-50-0
 (elec. potential of redox couple containing)
 IT 1126-00-7 3463-30-7 20755-72-0 57211-65-1 59219-37-3
 (optical absorption and luminescence of)
 IT 130102-10-2 130102-11-3 130102-12-4
 130102-13-5 130102-14-6
 (redox. potential and optical absorption and
 luminescence of)

L16 ANSWER 30 OF 31 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1989:534440 HCAPLUS
 DOCUMENT NUMBER: 111:134440
 TITLE: Absorption spectra, luminescence
 properties, and electrochemical behavior of
 two new cyclometalated platinum(II) complexes
 Sandrini, Diana; Maestri, Mauro; Ciano,
 Mauro;
 Balzani, Vincenzo; Lueoend, Rainer;
 Deuszel-Cornioley, Christine; Chassot,
 Laurent; Von Zelewsky, Alex
 CORPORATE SOURCE: Dip. Chim. "G. Ciamician", Univ. Bologna,
 Bologna, I-40126, Italy
 SOURCE: Gazzetta Chimica Italiana (1988), 118(9),
 661-5
 DOCUMENT TYPE: CODEN: GCITA9; ISSN: 0016-5603
 LANGUAGE: Journal
 English

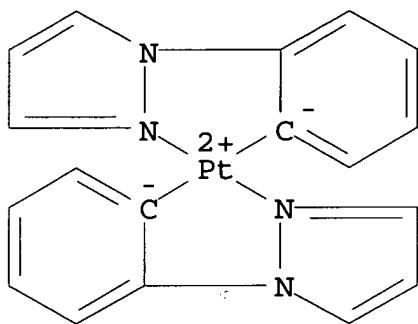
AB The absorption spectra, luminescence spectra,
 luminescence quantum yields, excited state lifetimes and
 electrochem. behavior of the cyclometalated Pt(phipz)₂ and
 Pt(phipz)(thpy) complexes, where phipz- and thpy- are the
 ortho-C-deprotonated forms of 1-phenylpyrazole and
 2-(2'-thienyl)pyridine, have been investigated. The results
 obtained have been compared with those concerning the free
 protonated ligands and the previously studied Pt(thpy)₂ complex.
 Luminescence originates from the lowest metal-to-ligand
 charge transfer (MLCT) excited state, which in the mixed ligand
 Pt(phipz)(thpy) complex involves the thpy- ligand which is easier
 to reduce. Pt(phipz)(thpy) exhibits a strong and long lived
 luminescence even in fluid solution at room temperature. In the
 absorption spectra, MLCT and ligand-centered (LC) bands involving
 the phipz- or thpy- ligands have been assigned and correlations
 between spectroscopic and electrochem. data are discussed.

IT 109284-54-0 122658-63-3

(absorption spectrum, **luminescence**, and electrochem.
redox reaction of)

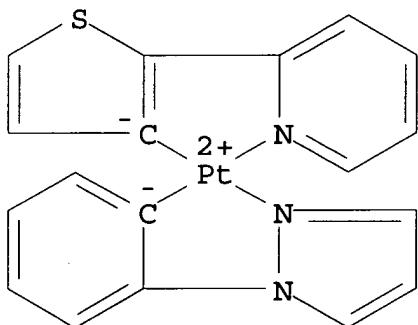
RN 109284-54-0 HCPLUS

CN Platinum, bis[2-(1H-pyrazol-1-yl)phenyl]-, (SP-4-2)- (9CI) (CA
INDEX NAME)



RN 122658-63-3 HCPLUS

CN Platinum, [2-(1H-pyrazol-1-yl)phenyl] [2-(2-pyridinyl)-3-thienyl-C3,N2]-, (SP-4-3)- (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s) : 22

ST cyclometalated phenylpyrazoleplatinum UV electrochem
luminescence; platinum cyclometalated phenylpyrazole
electrochem spectra; thiénylpyridine cyclometalated platinum
electrochem spectra

IT 1126-00-7 3319-99-1 100012-12-2 **109284-54-0**

122658-63-3

(absorption spectrum, **luminescence**, and electrochem.
redox reaction of)

L16 ANSWER 31 OF 31 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:496876 HCPLUS

DOCUMENT NUMBER: 107:96876

TITLE: Cyclometalated complexes of platinum(II):
homoleptic compounds with aromatic C,N

ligands

AUTHOR(S): Chassot, L.; Von Zelewsky, A.

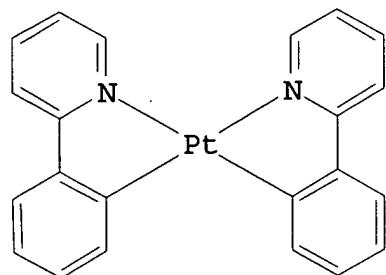
CORPORATE SOURCE: Inst. Inorg. Chem., Univ. Fribourg, Fribourg,
CH-1700, Switz.SOURCE: Inorganic Chemistry (1987), 26(17), 2814-18
CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

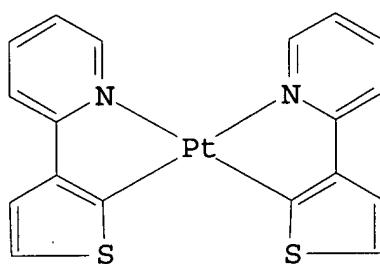
LANGUAGE: English

OTHER SOURCE(S): CASREACT 107:96876

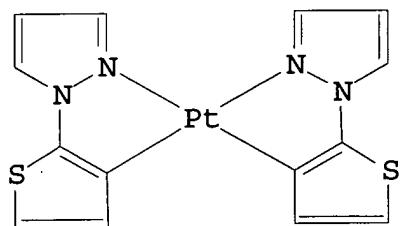
GI



I



II



III

AB The synthesis of five new homoleptic bis(cyclometalated) Pt(II) complexes, e.g., *cis*-bis(2-phenylpyridinato)platinum (I), *cis*-bis[2-(2-thienyl)pyridinato]platinum (II), and *cis*-bis[1-(2-thienyl)pyrazolato]platinum (III), from *trans*-PtCl₂(SEt₂)₂ and the lithiated ligands at low temperature

is

described. All compds. are air-stable, soluble in many organic solvents, and photoreactive in solution under irradiation with visible

light. The strong low-energy bands in the electronic spectra in the range from 400 to 450 nm are assigned to metal to

ligand charge-transfer (MLCT) transitions from a Pt(5d) orbital to an empty π^* orbital of the ligands. Most spectra show a weak absorption superimposed on the low-energy side of the strong MLCT band. This weak absorption is attributed to a singlet-triplet transition of the same type as the strong band. The complexes can

be reduced electrochem. in reversible one-electron steps.

Oxidation

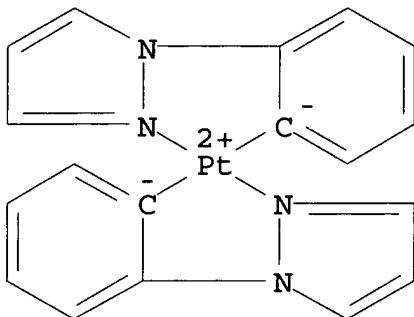
occurs also, but in a completely irreversible manner.

IT 109284-54-0P 109306-87-8P

(preparation, multinuclear NMR, UV, and cyclic voltammetry of)

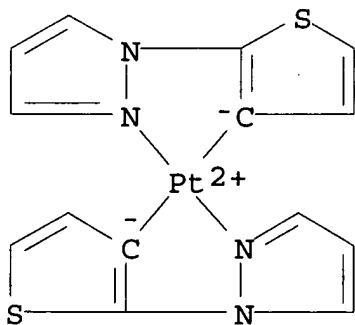
RN 109284-54-0 HCPLUS

CN Platinum, bis[2-(1H-pyrazol-1-yl)phenyl]-, (SP-4-2)- (9CI) (CA INDEX NAME)



RN 109306-87-8 HCPLUS

CN Platinum, bis[2-(1H-pyrazol-1-yl)-3-thienyl]-, (SP-4-2)- (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)

IT Section cross-reference(s) : 72
100012-12-2P **109284-54-0P** 109284-55-1P 109284-56-2P
109306-87-8P
(preparation, multinuclear NMR, UV, and cyclic voltammetry of)